SOCIAL STUDIES

VOLUME VI

IOWA ELEMENTARY TEACHERS HANDBOOK

Iowa Elementary Teachers Handbook

VOLUME VI

SOCIAL STUDIES

Geography, Grades 1-8

History, Grades 1-6

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FOREWORD

It was the original intention to include in this volume all social studies materials for the elementary school. However, because of the extensiveness of the material when all subjects were considered, it was decided to include in this volume only geography to be covered throughout grades one to eight and the history through grade six.

In keeping with the basic philosophy governing the preparation of the entire series of handbooks an effort has been made to preserve the integrity of each of the subjects treated in the elementary curriculum. At the same time the committees have been constantly alert to the need for careful integration of subject matter and have made suggestions in all subject areas treated as related to the correlation of materials when such procedure would contribute to better understanding and tend to enrich the content of the subject being treated.

It will be noted, however, that in dealing with the materials in this volume the committee has departed slightly from the principle outlined above. The history provided herein is utilized more in the nature of enrichment material and chiefly that history is drawn upon which will answer this purpose. Consequently, because the work in geography receives the main emphasis, and because the human use regions (which are the basis of organization for the geography) are not treated in an order which makes it possible to follow a chronological sequence in history, the history plays a minor role in these grades.

The committees responsible for the social studies courses have been in complete agreement with this arrangement because care has been taken to provide a complete and thoroughgoing course in elementary history for grades seven and eight. This upper grade history course is organized chronologically and provides the only such treatment of history for the grades. It appears in Volume XII of this series of handbooks.

While the principle of lending chief emphasis to geography holds true in almost all units in this course, there are one or two exceptions to this rule. There are certain regions in the

Old World in which the historical contribution seems to be of greater significance than does the geographic and for this reason the history of the region in question is given major emphasis. The importance of this arrangement seems perfectly clear when the regions in question are known. These units deal with the Eastern Mediterranean and Greece, the historic significance of which in each instance is immediately evident.

Briefly, the course is organized to cover specifically Indian history in grade two; food, clothing, and shelter today as contrasted with long ago in grade three; a unit on transportation and the typical type studies materials found in all geography series for grade four; and the United States and Canada in grade five. The relationship between geography and history previously described really begins in grade five and continues in succeeding grades, depending upon the gradation of material followed in the succeeding grades. While no specific provision is made for it in this course, the assumption is that the work in Grade I will deal principally with the elementary aspects of the home and that it will be handled chiefly in connection with the reading activity.

Because the gradation of content beyond the fifth grade varies considerably with the series of geography texts in use, the committee has purposely avoided indicating the grade level at which those units above fifth grade are to be treated. Many convincing arguments can be presented for the grade placement of these materials at different grade levels. Perhaps the most significant evidence to be presented in support of this contention is the variation in sequence of these materials among the various geography series now on the market. Regardless of gradation, the principles suggested in this course are sound and applicable in any grade in which the materials, other than those specifically outlined for grades up to and including the fifth, may be handled.

The suggestions offered for handling those phases of the social studies program contained in this volume are in some degree a departure from traditional practice. On the other hand this departure is not as extensive as some authorities in the social science field have advocated. It is the feeling of the State Department, however, that the committee has adhered strictly to sound principles in developing the course, and we have complete confidence in the reception it will receive from professional as well as lay people in the state.

The efficient professional service given in the preparation

of this manual by various educators is much appreciated and is hereby acknowledged. These contributors are as follows: Mr. Herschel K. Bennett, Dr. Ernest Horn, Dr. Barton Morgan, Mr. Paul B. Norris, Dr. Elmer L. Ritter, Miss Anne Verhey, Miss Edith Barber, Miss Alison E. Aitchison, Miss Marguerite Uttley, Dr. Marshall R. Beard, Mr. Charles F. Martin, Miss Flora Rendleman, and Miss Beatrice Bergh.

JESSIE M. PARKER,
Superintendent of Public Instruction.

October 1944

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SECTION I—GRADE TWO

INDIAN LIFE

Why Have Indian Life in the Elementary School?

The teacher should always bear in mind that the study of Indian Life should help the child to see the effects of environment on Man and Man's increasing mastery over nature. Indians are a good illustration of primitive man who had little mastery over nature. Mastery over nature comes with the advancement of civilization. The study of Indians, however, provides an opportunity for the child to compare the Indian's life and habits with his own in terms of his own experience.

As stated in *A Course of Study in Indian Life*,[1] children learn that different tribes responded to nature and the environment by building different homes, eating different foods, and wearing different clothing, according to the materials that were most easily available.

Through this study the child should be better able to realize that people dress and work and think as they do because of the needs and influences of the environment in which they live. Customs, occupations, and personal characteristics are shaped by environment to such an extent that one cannot understand them without knowing their background.

Storms[2] states that by studying Indian history pupils become familiar with a time and manner of living far different from our own—a time when there were no farms, stores, or houses such as we live in, and when every custom and habit of daily life was different from ours. Thus the children receive a background for placement of these Indians in their later study of local history.

This study may also lead to a better appreciation of our present life. For example, Iowa pupils appreciate the fact

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[1]Dearborn, Francis; Horn, Ernest; Brown, Georgia. *A Course of Study in Indian Life.* State University of Iowa, Iowa City, Extension Bulletin No. 143, 1926.

[2]Storms, Grace: "The Study of Indian Life," *Classroom Teacher,* Vol. 4, 1929, p. 509. The Classroom Teacher, Inc., Chicago, Milo B. Hillegas (editor).

that the Indians were the first to bring corn under cultivation, thus giving us the beginning of our staple crop.

Therefore we can say that the most important understandings to be developed in Indian history are the following:[3]

"1. The Indians were entirely dependent upon their environment for food, clothing, and shelter.

"2. The extent to which the Indians were able to provide these needs depended upon their environment and the degree to which their civilization had developed."

Since there is little if any material on Indians in print that comes within the reading range of second grade children, most of the references in this section will have to be read to the children by the teacher or will have to be rewritten by the teacher and written down to the second grade level. The latter procedure is much to be preferred but in those instances where it cannot be done, the former will be necessary.

The task of rewriting is not as formidable as might appear to be the case at first thought. It does not involve the rewriting of whole books, but rather those portions dealing specifically with concepts under immediate consideration. It is important that the rewriting be carefully done and that the correct interpretation be given to the concepts which are dealt with.

How to Teach a Unit on Indian Life

The emphasis in such work is largely on the problem of how the Indians adapted their manner of living to their environment. Naturally, adaptations made by people in different regions varied depending on the climate and animal life. Therefore, the suggested outline for Indian Life divides the study into different regions.

An extensive outline of a unit on Indians of the Plains region is given on the following pages. This unit can be used as a teacher's guide. It would be unwise to follow every step in the unit without making those changes that are necessary to fit the abilities of the pupils concerned.

While studying other regions such as the Indians of the Eastern Woodlands, the Prairies, the Northwest, and the Southwest, problems may be set up in a manner similar to the outline concerning the Plains Indians.

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[3]Hyslop, Alice: *Second Grade Teacher at Elementary School.* State University of Iowa, Iowa City. (Unpublished teaching materials used through her courtesy).

After one region has been studied quite extensively, other regions can be studied by comparison. For example, after knowing how and why the Plains Indians made their tepee, the pupil will learn that the Indians of the Southwest would not build such a house because different materials for building are found there, and their occupations call for a more permanent structure.

The Plains Indians

The set of problems which follows may be used as an aid for the teacher in setting up her work, although they are not necessarily intended as a study guide for children. For the greater part, however, these problems were actually raised and organized in the classroom. (See reference 3, page 14.) Problems have been inserted and reworded in some parts of the outline.

In introducing a unit on the Plains Indians the teacher will wish to develop with the children some idea of the physical appearance of the Plains Indian. She will wish also to give character to him. It is necessary to develop first a background of facts upon which children can base their thinking. Part of this background can be developed by placing pictures relating to various tribes on the bulletin board. A part of this background will need to be developed by the teacher's discussion. After a discussion of the background materials, the children should be helped to raise their problems.

For example, after the teacher has placed a number of pictures of different kinds of Indian houses on the bulletin board,[1] the pupils, with the help of the teacher, will soon discover that these houses were constructed quite differently and with different kinds of materials. Then by writing down to second grade level so the children can read for themselves materials out of books, such as *Man in Nature*,[2] *How the Indians Lived*,[3] and *American Indians*,[4] they will soon discover that many dif-

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[1]Rhode, Halla; Coon, Bessie: *American Indian Life.* University Press, 1066 University Place Station, Des Moines, Iowa.
Informative Classroom Picture Series. *Indian Life,* Grand Rapids, Michigan.

[2]Sauer, Carl: *Man in Nature,* p. 267. Charles Scribner's Sons, 1939.

[3]Dearborn, Frances: *How Indians Lived.* Ginn & Co., Boston, Massachusetts, 1927.

[4]Starr, Frederick: *American Indians.* Heath & Company, Boston, Massachusetts, 1898.

ferent kinds of houses were made by the Indians, each region having at least one or more kinds. In the event that the materials cannot be reduced to second grade level, the teacher should read to the children portions from these books which apply.

The teacher will then explain by the aid of a large United States map and these pictures that the Indians of different regions built their homes according to the material which they found in their region. It will be pointed out that the roaming Indians, such as the Plains Indians, built temporary houses that could be moved easily, while much more substantial homes were made in regions where the Indians' occupation called for more permanent dwellings, such as the Indians of the Southwest. It can also be told that the Indians of the Eastern Woodlands made their houses from poles and bark because they were surrounded by trees, while the Plains Indians made their houses of skins over poles. These skins were obtained easily from the herds of buffalo.

[1]By using the index again in finding information about the tepee, the pupils will find that the Plains Indians made this kind of house. The child will soon ask questions such as, "Of what materials was the tepee made?" and "How was it made?"

These problems may be written on the board as they are raised. The teacher may have the class reorganize the problems in logical sequence, thereby providing for actual experience in evaluation and organization.

Children's ability to raise problems will increase with experience. All problems will not necessarily be raised during the first lesson. As the children read, new avenues of thought will be opened to them bringing new problems before them.

Typical Problems[1]

I. What was the country like which is known as the Great Plains?
   A. General environment
      1. Was it warmer or colder than our part of the country?[2]

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[1]Bennett, H. K.: *A Plan for Directed Study Through Work-Type Reading*, p. 63. Klipto Loose Leaf Company, Mason City, Iowa, 1939.

[1]See footnote 3, page 14.

[2]The facts involved here can be developed for second grade children by pointing out the contrasts in seasons at home and by relating to them our own environmental contrasts with other regions. They do not have the background for understanding the fundamental reasons.

2. Why were there few trees except along the rivers?

B. Plant life
   1. What kinds of trees grew there?
   2. What plants were there that could have been used for food by people or animals?
   3. Was the country a good place for farming?[3]

C. Animal life
   1. What kinds of animals lived there?
   2. How were these animals protected so they could live in this climate?

II. In what kinds of homes did they live?

A. Earth lodge
   1. How long could Indians live in the same place?
   2. When was the earth lodge used?
   3. How was an earth lodge made?
   4. How was it furnished inside?
   5. Why didn't all Indians continue to live in earth lodges?

B. Tepee
   1. Of what material was the tepee made?
      a. What kinds of skins were used?
      b. How many skins were needed?
      c. How many poles were used in making a tepee?
      d. What was used for thread? How was the tepee cover held in place?
   2. How was a tepee made?
      a. Who did the work?
      b. How was the hide prepared?
      c. How did a smoke flap work?
      d. How were the skins sewed together?
      e. How big were the tepees?
      f. What was the dew cloth?
      g. Were all tepees alike? Who made the best ones?
   3. How were the tepees decorated?
      a. What was used to color the design?
      b. Which designs were used most often?
      c. What did the designs mean?

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[3]Here again the concepts are difficult for second grade children. The facts involved, however, can be presented by the teacher in such a way that the contrasts are obvious and a decision can be reached. The fundamental reasons are beyond comprehension of second grade children.

4. How were the tepees set up?
   a. Who put up the tepees?
   b. How was the framework made?
   c. How was the cover fastened on?
   d. What made the tepee stay on the ground?
   e. How long did it take to move or set up a tepee?
   f. How were horses used in putting up a tepee?

III. What could Indians get for food on the Great Plains?

A. Buffalo
   1. How was the buffalo hunted?
   2. How was it used by the Indians?

B. Other foods
   1. Which small animals were used as food?
   2. What nuts or berries could they find?
   3. What roots or herbs were eaten?

C. Food preparation
   1. How was food cooked?
   2. Which foods could be eaten raw?
   3. Did they use any salt, pepper, or flavoring?

D. Food storage
   1. Why was it important for them to store foods?
   2. How were their ways of saving food different from ours?
   3. How was pemmican made?
      a. What meats were saved that way?
      b. How was the meat taken care of?
      c. What made it keep?
      d. Why was this a good way of storing food?

IV. What kind of clothing did the Plains Indians wear?

A. General questions
   1. Who made the clothing?
   2. What articles of clothing were worn by the men, women, and children?
   3. How were the headdresses made?
   4. How were the Plains Indians' moccasins made?
   5. How were ceremonial clothes different from those they wore every day?
   6. How did a warrior protect his body when he was hunting or fighting?
   7. How did the clothing worn differ with the seasons?

B. Materials used
   1. What kind of hide made the best clothing?
   2. How was hide prepared for clothing?
      a. How was it staked out?
      b. What is meant by "fleshing"?
      c. What made the hide soft enough for clothing?
   3. How was clothing sewed together?
   4. What were used for needles and scissors?

C. Ornaments
   1. What were some ways of decorating the clothing?
   2. Where did they get their dyes?
   3. How was the quillwork done?
   4. What kinds of designs did the Plains Indians make?

V. How did the Plains Indians travel?

A. Land transportation (before they got horses from the white man)
   1. Why was it necessary for the Indian to travel?
   2. How did they move their tepees?
   3. How were all the supplies carried?
   4. How was a dog travois made?

B. Land transportation (after they got horses)
   1. From whom did the Indians first get horses?
   2. How did the horse change the Indians' way of living?

C. Water transportation
   1. What is a bull boat?
   2. Why didn't Plains Indians travel much by water?
   3. Why didn't most Plains Indians make canoes?

VI. What tools and weapons did the Indians need and how did they make them?

A. Tools for getting food and making clothing and shelter
   1. What kinds of tools were used for digging herbs?
   2. What tools were needed in taking care of hides?
   3. What things were used in making tools?

B. Weapons
   1. How was a bow and arrow made?
   2. What different kinds of arrowheads were made?
   3. What materials made good arrowheads?
   4. What was the purpose of the feathers on the arrow?

5. How were the parts fastened together?
6. How was a tomahawk made? For what was it used?
7. How were lances used?

VII. What was the religion of the Plains Indian?

A. Religious beliefs
1. How did they show their religion in everyday living?
2. What were some of their beliefs?
3. What was a medicine bag? How was it suposed to help the owner?
4. What was the purpose of the dances and ceremonies?

B. The Medicine Man's part
1. Who was the medicine man?
2. How did the medicine man dress?
3. What was his work?

VIII. How did the Indians take care of their sick?

A. Diseases
1. What diseases did they have before the white man came?
2. How did their ways of living affect their health?

B. Remedies
1. Who took care of the sick people?
2. What did the Indians know about medicine?
3. What did they usually believe was the reason for sickness or death?
4. What did the medicine man do to help people who were ill?
   a. How did the medicine man usually plan to cure people?
   b. Did the medicine man ever really help the sick? How?

IX. How did the Indians have fun?

A. Games
1. What games did the Indian children play?
2. How did their games train them to be brave and to be good marksmen?

3. What kinds of toys did the Indian children have?
4. What games did the grownups enjoy?

B. Music
1. What kinds of musical instruments did they use?
2. How were the instruments made?
3. Upon what occasions did they like music?
4. What kinds of songs did they sing?

X. In what ways did the Indians of the Plains prove themselves skillful workers?

A. Skinwork
1. What uses were made of hides?
2. How was the hide prepared differently for different purposes?

B. Quillwork

C. Beadwork

D. Tools and weapons

XI. What systems of communication and trade did they use?
A. Signals
1. When might it have been necessary to send messages?
2. What ways are there of making signals or marking trails?

B. Bartering
1. What did Indians have to buy, sell, or barter?
2. What was used in place of money?
3. How did bartering change the way the Indian lived?

Activities

The term "activities" as used in this section includes both verbal and constructive activities. Typical verbal activities include reading, discussion, and writing. Constructive activities are those which are concerned with the making of things.

A special caution that should be observed in constructive activity work. In judging the educational value of constructive activities, one must always bear in mind that the activities must be authentic; it must present a real-life experience.[1]

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[1]Verhey, Anne: *Evaluation of a Recommendation for Constructive Activities Related to a Unit on Indian Life.* Unpublished thesis, Iowa City, State University of Iowa, 1940.

The materials used should be authentic and when these are not available the activity should be omitted rather than carried out with wrong materials which will make false impressions upon the child. In scattered instances other materials may be substituted for authentic ones provided they are similar in nature and that the child is fully aware of how and why the substitution is being made. It is equally important to emphasize that the steps which are taken in carrying out the activity should be like the processes used in real life and in keeping with the time and place the activity is to represent.

Activities which might well grow out of a study of this unit. After the information that is needed to answer the questions raised in studying these problems has been found in different sources and read, *oral conversations and discussions* can be held in order to relate such information.

This activity can often lead to another—*composite writing.* Pupils will all contribute toward this writing or summarizing by stating the information that answers the different problems. As the pupils give the information the teacher will write it on the blackboard. This writing often needs reorganization, which should be done by pupils and the teacher. Later the teacher can place these stories on charts, and pupils can use them as reading materials.

As the children advance in this work they will soon learn to write stories and summaries for themselves. These activities are excellent checks on the extent to which the child has mastered the information correctly.

Children can collect arrowheads and other Indian curios making a classroom museum. Each piece should be labeled according to the region to which it belongs.

Cooking with hot stones is another means by which the children can experience an Indian process. A hot fire is kindled in which stones are heated. Then with pincers made of sticks the hot stones are dropped in a vessel of water. The Indians used as a vessel a watertight basket, a clay pot, or a skin. Since it would be difficult to provide the materials for the children, a kettle may be used as a substitute provided the children know that clay vessels or baskets and skins were used by the Plains Indians.[1]

Since the Indians often gathered wild berries and wild turnips, these may be cooked with a soup bone and made into

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[1]Wissler, Clark: *Indians of the Plains,* pp. 27-30. American Museum of Natural History, New York, N. Y., 1934.

soup. These ingredients should be boiled in water, using the stone-boiling method.[2]

The Plains Indians found salt in crystal form near springs and lakes. The women dug it up with sticks. If such salt can be secured it may be brought to school, examined, and pounded.[3]

A tepee may be made. The Indian method of constructing a tepee was as follows: The tepee consisted of a circular framework of poles brought together near the top and covered with dressed buffalo skins sewn to form a single piece, which was kept in place by means of wooden pins and ground pegs. It commonly had about twenty poles, averaging twenty-five feet in length, each pole being hewn from a stout sapling, usually cedar, trimmed down to the heart wood. The poles were *set firmly* in the ground so as to make a circle of about fifteen feet in diameter, and were held together above by means of a hide rope wound around the whole bunch about four feet from the upper ends, leaving these ends projecting above the tepee covering.

There were three main poles (some tribes used four) upon which the weight of the others rested. The cover consisted of from fifteen to eighteen dressed buffalo skins, cut and fitted in such a way that, when sewn together with sinew thread, they formed a single large sheet of nearly semicircular shape. This was lifted into place against the framework by means of a special pole at the back of the structure, after which the two ends were brought around to the front and there fastened by means of eight or ten small wooden pins running upward from the doorway nearly to the crossing of the poles. The lower border was kept in place by means of pegs driven into the ground at a distance of about two feet apart around the circle.

The doorway faced the east, the usual door being a piece of dressed skin stretched over a rectangular or elliptical frame frequently decorated with porcupine quills, deer hoofs, or other ornaments. The fire pit was directly in the center, and the smoke escaped through the opening in the top at the crossing of the poles. By means of movable ear flaps on each side of the smoke hole, the course of the smoke could be regulated as the wind shifted, the flaps being kept in place by two poles on the outside of the tepee.

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2 [3]Hodge, Frederic: *Handbook of American Indians,* Vol. I, p. 467. Bureau of American Ethnology, Bulletin No. 30, Washington, D. C., Smithsonian Institute, 1907. (Although this publication is not now available for purchase, it may be found in libraries.)

In converting the above description into a classroom activity, the principal change that must be made is the reduction in size of the tepee. If the tepee is to be made and set up indoors, and at the same time to be large enough for a small group of children to play inside, the measurements given above should be reduced by about two thirds. The number of poles used should also be proportionately less. The child should be made aware that this is a reduction and that it is made necessary for purposes of convenience. Other substitutions will also be necessary. Since it will almost certainly be impossible to procure buffalo skins for the covering of the tepee, unbleached muslin may be used. In lieu of a hide rope, ordinary rope will suffice. Instead of sinew thread, an ordinary needle and thread will do. No supporting poles can be set into the ground, since the activity will presumably take place on the classroom floor, but large stones may be used instead as props. The child should be told in each case that the substitution is being made, and he should understand the reason.

An Indian drum can be made. First a skin should be cured. The Indians used the following six steps in this process:[1] fleshing, scraping, braining, stripping, graining, and working. Each step was performed by the Indians in the open air. Deerskin was considered best, but buffalo, white elk, moose, antelope, beaver, and calf hide were also used.

The fleshing was begun while the skin was still warm. The skin was staked out upon the ground, fleshy side up, and two women working together scraped off the flesh and fat by means of a sort of gouge with serrated edge, anciently made from the leg bone of some large animal, for which is now substituted a similar iron instrument procured from the traders. By means of a loop going over the wrist the strength of the blow was increased, the worker kneeling or bending over the skin.

Next came the scraping. The instrument used was a short adz made of wood or elk horn with a blade of stone or iron set at right angle to the handle. Several women worked together. The hide was staked out, hair side up, with a bed of

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[1]Dearborn, Frances; Horn, Ernest; Brown, Georgia: *Course of Study In Indian Life,* p. 29. University of Iowa, Extension Bulletin No. 143, 1926.
Sauer, Carl: *Man in Nature* (America Before the Days of the White Man), A First Book in Geography, pp. 112-113. Charles Scribner's Sons, New York, N. Y., 1939.
Also, see footnote 2, page 23.

old dressed skin under it to break the force of the blow and thus prevent tearing as well as to keep the dressed surface clean. Each side was scraped in turn, the final scraping being the more delicate operation. The hair and the skin shavings were saved for filling pillows, or were sometimes boiled into soup.

Then came the braining process in which the skin was thoroughly anointed with a mixture of cooked brains and liver, grease, and pounded soaproot (yucca), all mixed together and applied with a sponge of soaproot fiber. A little salt was frequently added. The liver was hashed or sometimes chewed to render it fine enough before cooking, and approximately the whole brain and liver of the animal were required to dress its hide. The braining was an easy and rapid process, after which a bundle of dried grass was laid in the center of the hide and saturated with hot water. The corners of the hide were brought together over it in bag fashion and the skin tightly twisted into a solid ball and hung up to soak overnight for the next process.

Next came the stripping, intended to squeeze out the surplus moisture and the dressing mixture. The dampened hide was first opened out and twisted into a rope in order to expel as much moisture as could be thus dislodged, after which it was stretched tightly at an angle of forty-five degrees in a frame consisting of a cross piece supported by two stout forked poles, the lower end of the skin being staked to the ground. The stripping was done by two women working together, the instrument being a broad blade about six inches long much resembling a small hoe blade set in a bone handle. The ancient tool was of stone. The instrument was grasped horizontally in both hands, and with the blade pressing heavily upon the skin it was drawn steadily from top to bottom, causing a thin stream of water to ooze out before the blade as it descended. As one woman neared the bottom her partner followed along the same track, before the moisture could work back under the blade. In this way the work went on to the end over the whole surface of the skin, after which the skin was left suspended in the frame to dry and bleach until it was ready for graining. This was done with a globular piece of bone as large as could be conveniently held in the hand, taken from the spongy portion of the humerus of a buffalo or other large animal. With this bone the whole surface of the skin was rubbed as with sandpaper to reduce the hide to uniform thickness and smoothness and to remove any hanging fibers. After this the breaks and holes were repaired with an awl and sinew thread.

Then came the process of working or softening to render the skin pliable. This was done by drawing the skin for some time in a seesaw fashion across a rope of twisted sinew stretched between two trees a few feet apart. It was sometimes drawn first around the trunk of a rough barked tree for a short time, two women again working together, one at each end of the skin. This treatment gave the skin its final softness. Afterward it was cleaned with a wash of white chalk clay in water put on thick with a bunch of root fiber or dried grass for a brush, and brushed off when dry.

Making a drum. A calf hide can be secured from a meat-packing plant, or from a farmer. The children should use the same process of curing the skin as described above, except that the braining and stripping are omitted. In this activity the skin is not softened.

The next step is the hollowing of a log for use as a frame for the drum. A drum approximately eighteen inches in diameter and a foot long is a suitable size. The drum should be made from a log which is not too green. The log should be hollowed out first with knives (a substitute for Indian implements, the use of which is hardly possible for children), and then by burning it with tinder. The bark should be kept wet so that it will not burn. The charcoal should then be dug out, and the bark peeled off (after the burning, never before). Then the skins which the class has recently cured should be placed over each end of the drum and laced together by the over-and-under process. The Indians laced them together with hide, but string can be used as a substitute.[1] This activity should be used while studying the Plains Indians.

Pemmican can be made by cutting raw meat into thin slices (the Indians used buffalo or deer meat), and drying it in the sun or over the smoke of a slow fire. This meat is then pounded fine between stones. Some fat should be mixed with the meat, and wild berries or plums can be added. In order to keep it for several years, the Indians compressed it into skin bags and hung it in a dry place.

Suggestions for Other Indian Units

After one group of Indians has been studied in detail, other groups of Indians can be studied through comparison.

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[1]Douglas, Frederic: *Indian Musical and Noise-Making Instruments.* Department of Indian Art, Leaflet No. 29. Denver Art Museum, Denver, Colorado, August, 1931.
Also, see footnote 1, page 24, and footnote 2, page 23.

The following suggested outline may be used as a guide.

Indians of the Dry Southwest

I. How does the Southwest differ from Iowa?
II. What kinds of plant life and animal life do we find there?
III. What kind of homes did these different Indians build, and why were such materials used?
IV. What could the Indians get for food in this region?
V. What kinds of clothing did the different tribes wear and why?
VI. Why did these Indians do so much less traveling than the Plains Indians? How did they travel?
VII. What tools and weapons did these Indians need and how did they make them?
VIII. Do the Indians of the Southwest have the same fun as the other Indians have? Do they have the same games and dances?

Activities

1. Composite stories and summaries
2. Individual stories
3. Illustrations
4. Grinding corn on flat stones
5. Making pike bread; baking it on hot stones[1]
6. Parching corn[2]
7. Drying corn; hanging it from rafters[3]
8. Making clay bowls, using the coil method[4]
9. Washing, carding, and spinning wool thread and later weaving a rug[5]
10. Making fire using the pump drill[6]

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[1]Goddard, Pliny Earle: *Indians of the Southwest,* p. 80. American Museum of Natural History, New York, N. Y., 1921.

[2]See footnote 1, page 24.

[3]See footnote 1, page 24.

[4]Bonser, F. G., and Mossman, L.: *Industrial Arts for Elementary Schools,* pp. 293-301. Macmillan Company, New York, N. Y., 1935.
Robinson, W.: *Under Turquoise Skies,* pp. 198-199. Macmillan Company, New York, N. Y., 1935.
Also, reference given in 1, above.

[5]Bonser, F. G., and Mossman, L.: *Industrial Arts for Elementary Schools,* p. 215, ff.

[6]See footnote 2, page 23.
Salomen, Julian Harris: *Book of Indian Crafts and Indian Lore,* pp. 245-247.

Indians of the Eastern Woodlands

I. How do the Woodlands differ from Iowa?
II. What kinds of trees and animal life are in this woodland region.
III. What materials were used in building their long houses? How were they constructed? What other types of houses were found?
IV. What were the principal foods that these people gathered and planted?
V. From what animal skins did they make most of their clothing, and how was it made?
VI. What tools and weapons did these Indians need and how did they make them?
VII. What were the means by which these Indians traveled?
VIII. What work did the men do in this region? What did the women do?

Activities for Eastern Woodlands Indians

1. Make a pump drill.[1]
2. Make maple syrup or maple sugar.[2]
3. Prepare succotash, using the hot stone method.[3]
4. Make a wooden mortar and pound corn with it.[4]
5. Cut pumpkins in little strips and dry them in the sun.[5]
6. Dry corn, tying the ears of corn on poles.[6]
7. Ears of corn, having been wrapped in their husks, can be roasted in hot ashes.

Indians of the Northwest

I. What is the general appearance of this country?
II. What kinds of plant life and animal life do we find in this region?

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[1]Sauer, Carl, *op. cit.*, p. 57.
[2]Ibid, p. 51.
Hodge, Frederic, *op. cit.*, Vol. 2, p. 402.
[3]Sauer, Carl, *op. cit.*, p. 39.
Hodge, Frederic, *op. cit.*, Vol. 1, p. 446.
[4]Sauer, Carl, *op. cit.*, p. 39.
[5]Ibid, p. 37.
Hodge, Frederic, *op. cit.*, Vol. II, p. 402.
[6]Sauer, Carl, *op. cit.*, p. 37.
Hodge, Frederic, *op. cit.*, Vol. II, p. 395.

III. What material did they use for constructing their houses, and how were these houses built?

IV. With what tools and weapons did these people work?

V. What was their staple food, and where was it found? What other foods did they gather?

VI. How did these Indians construct their boats?

VII. From what principal source did they get their clothing? Why?

VIII. How were the totem poles made, and what was the motive in making them?

Activities for the Indians of the Northwest

1. Gather totem poles.
2. Carve a totem pole.[1]
3. Dry fish, hanging them from rafters.[2] Later these can be pounded.
4. Cook fish, using the stone boiling method.[3]
5. Roast fish in pit ovens.[4]
6. Gather and dry berries.[5]
7. Roast and dry camas roots.[6]

Indians of the Prairies

I. In what kind of out-of-doors did these Indians live?

II. What kinds of plant life and animal life do we find? Why were some woodland animals and birds found here?

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[1]Salomen, Julian Harris, *op Cit.*, pp. 245-247.
Hodge, F. W., *op. cit.*, Vol. I, p. 401.

[2]Dearborn, Frances, *op cit.*, pp. 49-53.
Hodge, Frederic, *op. cit.*, Vol. I, pp. 803-804.
Sauer, Carl, *op. cit.*, p. 159.

[3]Dearborn, Frances; Horn, Ernest, and Brown, Georgia, *op. cit.*, p. 29.
Hodge, Frederic, *op. cit.*, Vol. I, p. 467.

[4]Sauer, Carl, *op. cit.*, p. 158, p. 173.

[5]Douglas, Frederic H.: *Iroquois Foods, op. cit.*

[6] Sauer, Carl, *op. cit.*, p. 158.
Douglas, Frederic: *Iroquois Foods, op. cit.*

[7]Dearborn, Frances; Horn, Ernest, and Brown, Georgia, *op. cit.*, p. 29.
Sauer, Carl, *op. cit.*, p. 160.

III. Why did people of this region build their homes mostly in the valleys? How and from what were these houses constructed?

IV. What foods did they plant and gather? What animals did they hunt?

V. What tools did they have to work with? How were these made?

VI. From what materials did these people make their clothing, and how was it made?

VII. What group of Indians do we find in Iowa today? How do their living conditions and their occupations compare with the Indians living here long ago?

VIII. How did these Indians make their fun?

Activities for Indians of the Prairies

1. Prepare succotash, using the hot stone method.[1]
2. Dry corn, tying the ears of corn on poles.[2]
3. Cut pumpkin in small strips and dry them in the sun.[3]
4. Gather berries and dry them in the sun.[4]
5. Dry meat, hanging it from poles and rafters.[5]

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[1]Dearborn, Frances; Horn, Ernest, and Brown, Georgia, *op. cit.,* p. 29.
[2]Sauer, Carl, *op. cit.,* p. 131.
[3]Sauer, Carl, *op. cit.,* p. 131.
[4]Hodge, Frederic, *op. cit.,* Vol. II, p. 402.
Sauer, Carl, *op. cit.,* p. 130.
[5]Sauer, Carl, *op. cit.,* p. 133.
Hodge, Frederic, *op. cit.,* Vol. I, p. 446.

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SECTION II—GENERAL VIEW OF GRADES THREE THROUGH EIGHT

The Plan

The social studies curriculum for the third grade will continue building on the theme of home community life which was begun in the first grade. There is a definite body of material in such a study which builds a vocabulary and initiates the child into an understanding of the contribution which many kinds of workers are making to his well-being.

Food, clothing, and shelter are the primary needs of life and as such have great social significance. Investigations of the materials of food, clothing, and shelter in the home community make possible certain geographic experiences.

A comparison of our way of living with that of Iowa pioneers will help children to appreciate the comforts and conveniences which they have today and lead them to see the hardiness and resourcefulness of the early settlers.

The course of study for the middle grades does not offer a fused program as did the course for the third grade. The first five weeks in grade four are given over to the history of transportation. This is a study of progress from wagons, rafts, and sailing vessels of early times to modern streamlined trains, steamships, automobiles, and airplanes. The geographical study proper begins with the second unit of grade four, and the rest of the year is given to a study of the home life of various groups of peoples selected at different distances from the equator, so planned that an initial world understanding will result.

The fifth and sixth grade programs present a correlation of history and geography with major emphasis upon geography. One of the reasons for this concentration on geography is that history study extends through the eighth grade while geography closes in the middle of the eighth grade. Furthermore, most high schools offer three years of history, while few offer more than a semester of geography. Thus there falls upon the grade school the heavy burden of providing our citizens with knowledge of the geography of their country and the rest of the world.

The contributions of history and geography differ and neither one alone gives the "informed insight into men and society." History seeks to show how, through the long ages, civilization evolved; how laws, customs, cultures, and art slowly developed and were passed on from one nation to another. It points out how, as the centuries passed, men migrated from one part of the world to another, how nations waxed and waned, how we of the present are heirs of all the centuries of the past.

Geography, on the other hand, deals with the present and seeks to develop an understanding of the way in which man occupies the various regions of the earth *today* and makes use of earth resources. It seeks to build an appreciation of the fact that since natural environment varies from one region to another, men fitting their ways of living to their natural environmental conditions must of necessity develop different ways of living, have different types of homes, eat different foods, work at different industries.

The two disciplines should be so presented in the schools that our children will see and respect the basic reasons for the varying political and economic interests of the different sections of the United States and of the different countries of the world. Only when this is done can we hope to allay, even in part, sectional prejudice within our own country and overdeveloped nationalism in our relations with other countries.

The fifth grade course provides for a study of the United States, region by region. Each unit develops present day geography and the history of exploration and early settlement of the region. It may mean that the entire social studies period is given over to history for several days, a week, or more; then the period is devoted to geography for some time. The total time given to the study of one region is not necessarily equally divided between the two subjects. There are some units where geography provides more of the material; there are other units where history receives the greater stress.

The aim of the fifth grade social studies is to help the children understand their own country, present and past, that they may adjust themselves to it successfully, contribute to the welfare of its people, and take an intelligent part in creating good living conditions for all.

The United States is a composite of many regions of marked contrast in population density, endowment of natural resources, and ways in which people make a living. Certain problems which faced the pioneers may still exist today. In other cases

problems of the early days have vanished and new ones have arisen. Many regional problems for both producers and consumers have their roots in the natural environment.

The fifth grade child begins the work of filling in the world framework which he built in the fourth grade. No longer will he merely explore here and there, studying the home life of people along a river, in a mountain village, on a bit of seacoast. That sampling served its purpose in helping him build a world framework. But now he is ready to work with regions and finally fill the framework with the knowledge of whole countries.

The first country on which he will work is the United States. There is general agreement in the geography textbook series on this point. There are several reasons for the selection of the United States as the first country: (1) The American child has more actual contact with the various sections of the United States than with any other country. (2) He will be studying regions of great contrast in physical setting but all inhabited by people under the same government with essentially the same cultural heritage and with the same social institutions; in other words, a country with great geographical contrasts in the same civilization. Thus the child should come to see that natural resources (soil, water, minerals, forests, grasslands, fish) and earth conditions (climate, surface, seacoasts, harbors, relative location) are the basis of the distribution of the major industries (farming, mining, lumbering, fishing, manufacturing, transportation, and trade). (3) Having gained his first regional understandings in a study of the United States, he will use them over and over again in subsequent study of other countries with the result that his understandings of his home country will be deepened and enriched through discovery of similarities and contrasts. In a certain sense he will be studying the United States through all the rest of his course, the regions of the United States serving as his frame of reference.

After the fifth grade the units are countries or groups of countries, in contrast to human-use regions which comprised most of the fifth grade course. Unit understandings of countries are more complex than are understandings of human-use regions, for a country is a composite of human-use regions. While this step marks an advance into the next order of difficulty in geography, the way has been prepared in the latter part of the fifth grade where the unit on the American manufacturing northeast reviewed the role of the other human-

use regions of the United States. Canada, many of whose human-use regions are extensions of those of northern United States, served as a transition from human-use regions to a country as a whole.

Europe presents countries that are more difficult to understand than Canada, but easier than other countries of the world. Their civilization is essentially similar to that of our own country because our civilization is based upon a heritage from Europe. Many of the European countries are the homelands of parents, grandparents, and great grandparents of American children. Relatives of American families are still living in the home country. Contacts between the United States and Europe are many. From the standpoint of functional value to American citizens, Europe has been for a long time the continent of next importance after our own.

Added to these advantages is another of significance. In Europe the child will find many of the same human activities that he found in the United States carried on in the same natural settings. He will have opportunity to apply the understandings he already has mastered through the study of human-use regions in the United States. Comparison of the activities of our own communities with those of other peoples leads to a richer understanding of the life of both groups and helps to break down provincialism.

After attaining an understanding of the individuality of the various countries in which civilization is similar to that of the United States, the child proceeds to the next order of difficulty—the study of Oriental countries where civilization is notably different from that of the United States and Europe. These Oriental countries present marked contrasts in race and in cultural heritage. The customs, religions, and social institutions of eastern civilization differ in many ways from those of western civilization.

Added to this matter of racial and cultural differences is the complication of pressure of population upon the land and its attendant lowering of the standard of living. This somewhat abstract element, standard of living, is far too complicated an idea to be introduced any earlier. Then, too, it needs to be introduced where it is so evident that the child will not be likely to be confused. China, Japan, and India present such evidence.

People everywhere are becoming aware of the many problems of India and realize the importance of the solution of these problems not only for India herself but for the peace

of the world. An understanding of such a complicated tropical country can be better attempted at the seventh grade level than in earlier years.

The Southwest Pacific has been a storehouse from which Americans have drawn heavily, but until recently the general public has not been aware of it. The geography of the Southwest Pacific will furnish the key to an understanding of our commercial relations there. A unit on Africa introduces a few of the problems of that undeveloped continent. Nearly a year is devoted to the study of Latin America, another part of the world about which we Americans have recently discovered we know far too little. The sketchy study of South America, which according to many courses of study, was made in grade five never did acquaint children with that continent. The time devoted to the study was far too short and the understandings were beyond the comprehension of the fifth grade. Let difficult Latin American problems challenge both the interest and the thought of the more mature seventh and eighth grade children. Since our relations with South America, both political and economic, rest firmly upon a geographic base, there is need that we approach the problems involved with some geographic understanding.

After the study of Latin America, the eighth graders are returned to their own country for the purpose of seeing it in its world position. As improvements in communication and transportation have shrunk our world, we can no longer afford to remain ignorant of the many ways in which we are intimately connected with most parts of it. The day of isolation has passed; let us hope the day of real internationalism may soon come.

The various studies of human-use regions and countries that we have made since grade three are really fragments which we are now ready to fit together into a world whole. In this world whole we should now be ready to see certain patterns appear—patterns of population density, patterns of occupations, both closely interrelated with patterns of climate, surface, and other natural resources. To understand many of the problems which face the United States we need to know not only our own country but also our country in its world setting.

Meaning and General Objectives of Geography

Geography is the science of regions. It seeks to develop an understanding of the ways in which man occupies the various regions of the earth and makes use of earth resources.

It seeks to build an appreciation of the fact that, since natural environment varies from one region to another, men must of necessity vary their ways of living to fit these natural environmental conditions; that is, have different types of homes, eat different foods, develop different industries. Trade tends to iron out some of these regional differences in food, clothing, and shelter; but the trade of a region is in proportion to its capacity to produce, which in turn is related to the quality and abundance of natural resources.

The study of geography shows that the diverse regions of the world are not thrown together in a haphazard fashion, but represent a grouping in response to natural laws. Geography has the obligation of leading children to realize the workings of these laws region by region. For example, it is not only a matter of explaining why rain falls, but why it falls here or there in given amounts at certain times. Then, too, geography is concerned with nature's response to the rainfall. Forests, for instance, are where they should be; that is, where there is adequate rain.

Geography for centuries has been classified as a natural science. It is only within the last few decades that it has been included in the social studies. Geography functions in both groups for it deals with man and society but only with those phases of human affairs which are definitely rooted in the natural environment.

Any treatment of human geography which ignores cause and effect in its efforts to analyze the physical and biological environment and to interpret the relations of a human group to its natural setting is likely to degenerate into a collection of unrelated facts and to become, at best, a training in memory work. Geography has rather special opportunity for attracting young minds to problems and giving them the data necessary to solve the problems, while the actual solution is an exercise of the child's own reasoning powers.

Geography develops the thesis that "the earth is a vast estate inherited by man"; that the natural resources are basic to man's life; that what men do in one part of the earth affects favorably or unfavorably what men are doing in other parts of the earth; that the problem of living together is not only a problem for small groups of us to solve, but one which countries, too, must work out if all people are to have the best possible scheme of living together. The study of geography should help to develop a sense of both national and international responsibility.

Through the study of the distribution of natural resources, one appreciates the riches with which some countries are endowed and the handicaps which others have in niggardly supplies of nature's raw materials. One thus comes to have sympathy and understanding for different races and different political groups. The various trade patterns which have developed in the world reflect this uneven distribution of resources.

Geography leads to the concept that foreign trade is an exchange of commodities for mutual benefit rather than an expression of national power. It is concerned with helping develop an understanding of the increasing economic interdependence of the peoples of the world.

Vocationally, geography makes a definite contribution. It acquaints children with the major industries of the world and the natural resources and earth conditions upon which they are based. It develops the idea that man carries on these basic industries successfully when he investigates the natural setting and cooperates effectively with nature.

Avocationally, geography adds values to use of leisure time. Travel, actual or vicarious, is attractive to most people. Geography might be called the science of travel. It enables the actual traveler to observe, analyze, and understand in part what he sees. It challenges him to make some preparation before he sets out and to verify his observations upon his return. The armchair traveler brings his geographic training to bear upon his reading of travel books, travel magazines, and his viewing of his own or his friends' photographs of distant lands. Even novels have a new significance when their geographic setting is understood.

Need of Basic Textbooks in Geography and History

It is assumed that every child is provided with a geography textbook and a history textbook. Even though there may be justification for discarding the basal text at certain stages in the child's learning, it is essential that each child have ready access to a variety of maps and be able to have the map open on his desk during study time and during class discussion. The report of teachers that the maps wear out before the rest of the book bears witness to the child's great use of the maps in his textbook.

There are ten series of geography textbooks for the grade school on the market. The textbooks fall into three classes:

(1) a bare skeleton of facts with little development of the geographic mode of thinking; (2) a fuller treatment, with some attention to relationships between man and his natural environment; and (3) "books which aim to be self-sufficient" in that they provide much material and take great pains to lead children in the use of the fundamental methods of thought in geography. In a school where textbooks of class 1 or 2 are the basic texts, a supply of texts of class 3 for reference should be provided. In a school equipped with textbooks of class 3, it is a waste of time to use textbooks of classes 1 or 2 for reference. "Neither vividness nor detailed information is likely to result when the additional reading is limited to other textbooks." (Ernest Horn, *Methods of Instruction in the Social Studies*, p. 231.) In this course of study in geography no references are given to the various textbook series because the teacher and the children are well able to find material there. It is the supplementary material to enrich the textbook which has been carefully listed. Two classes of materials have been used: (1) information, i.e., geographical readers and authentic accounts of travelers; and (2) recreational, i. e., imaginative literature with a geographic setting.

Collateral Reading

Textbooks

Some of the fourth-grade geography textbooks contain sufficient authentic material and there is little, if any, need for collateral reading except for the rapid learners. A reasonably clear, valid understanding gained from studying one good textbook may be confused by wide reading of indiscriminately chosen materials which may cover the main outline with bewildering details. Especially is this true in the initial stages of the child's acquisition of the geographic mode of thinking. Through an early association with textual materials of high geographic quality, children will gain the habits of distinguishing between the likely and the unlikely, of seeking authenticity in the books, magazines, and newspapers to which they turn for geographic information. There is great value in wide reading in content subjects, provided the child has been well trained in his formative years in the use of good material. Therefore, let us depend more upon the textbook and a small amount of collateral reading in the fourth grade and in each successive year increase the amount

of collateral reading and finally come to think of the textbook in grades seven and eight as an outline of minimum essentials.

Newspapers

To keep abreast of the times children should have access to newspapers. There are several weekly newspapers which are written for children, and subscriptions to them are well worth the price from the standpoint of both geography and history.

For grades 4, 5, and 6:

My Weekly Reader. Published weekly during the school year. $.75. Columbus, Ohio: American Education Press, 400 South Front Street, Edition No. 4 for 4th grade; Edition No. 5 for 5th and 6th grade.

Young Citizen. Published weekly during the school year. $.75. Washington, D. C.: Civic Education Service, 744 Jackson Place Northwest.

For grades 5, 6, and 7:

Current Events. Published weekly during school year. $.75. Columbus, Ohio: American Education Press, 400 South Front Street.

For grades 7, 8, and 9:

The Junior Review. Published weekly during the school year. $.90. Washington, D. C.: The Civic Education Service, 744 Jackson Place.

Junior Scholastic. Published weekly during the school year. Dayton, Ohio: 430 Kinnard Avenue.

Encyclopedias for Children

Compton's Pictured Encyclopedia. Chicago, Illinois: F. E. Compton and Co., 1000 N. Dearborn Street. 15 vol., 1939 edition, $79.50.

World Book Encyclopedia. Chicago, Illinois: The Quarrie Co., 35 E. Wacker Drive. 19 vol., 1938 edition, $86.50.

Book of Knowledge. New York City: Grolier Society, 2 West 45th Street. 20 vol., 1940 edition, $69.50 (10 vol. edition $59.50).

Britannica Junior. Chicago, Illinois: Encyclopedia Britannica. 12 vol., 1944 edition, $63.90.

Maps

Maps, like the printed page, are open to all the world. But the making and interpreting of maps is particularly a function of geography. To the geographer, the map is an indispensable tool, but it is not a tool restricted to his use alone. Rarely a day passes that the newspapers do not call to our attention some scene of action in world affairs through the medium of a map.

Then, if our interest is great enough, we turn to atlas or globe to place the area discussed in its world setting or to supply detail which the sketch map does not offer.

It is not solely the happenings of the day which call for the use of maps. There are many lines of work in which the map is necessary. The highway engineer consults the topographic map, as do the drainage expert and irrigation engineer. The aviator carries detailed airway maps. The ocean navigator does not put out to sea without an adequate supply of up-to-date pilot charts. The shipper of perishable commodities refers to the daily weather map. For every long-distance auto trip the motorist studies road maps. A traveler in a strange city finds his way about readily, a city map in hand. In every stage of regional and city planning, maps are made and analyzed.

A map may be a geographer's shorthand method of recording data, but it is the open sesame to a whole world of interesting and valuable information to all who learn to glean its full meaning. The function of maps is far greater than that of merely showing place names. In a concise, accurate, and clear manner, many facts about any given place are available to one who knows how to read the language of a map. In order to read readily and completely, it is necessary to understand three fundamentals which concern all maps: (1) scale, (2) network or grid, and (3) symbols.

(1) *Scale.* The scale of a map is expressed verbally (so many miles to the inch) and by means of a measuring stick in the legend. An efficient way to measure the distance between two points is to lay a straight edge of paper down and mark the two points on it. Applying this to the scale, one can quickly and with reasonable accuracy calculate the airline distance.

There is one type of map upon which distances cannot be measured. Maps on the Mercator projection represent the earth as a flattened cylinder with the Arctic Circle as long as the equator. Since the distortion in middle and high latitudes is great, there is no scale given except for the equator. Greenland on a Mercator map appears as large as South America, though it is only one eighth the size. Dissatisfaction with the distortions of the Mercator map has led to the invention of numerous equal-area projections. Most of the maps in modern textbooks are drawn on these newer projections.

(2) *Network.* The network or grid upon which the map is drawn enables one to read direction. North and South are established by the meridians, east and west by the parallels. All continental maps, save those on the Mercator projection, have converging meridians; therefore, the general teaching that "the top of the map is always north" does not hold. The only way to go due north on a map is to follow a meridian toward the north pole. Over the major portion of a continental map a line drawn from any given point straight to the top of the map is not a north-south line. It is much more likely to be a northeast-southwest line or a northwest-southeast line. Despite the popular notion, north is not *up* save where the surface of the land rises toward the north. "Up" means distance from the center of the earth, "north" means toward the north pole. Perhaps the confusion of "north" with "up" might be avoided if the child first learned to read directions on a globe and on a map flat on his desk. Of course, on a Mercator map any point at the top is north. Children who were introduced to map reading through the Mercator map are, therefore, severely handicapped when they come to handle maps on other projections. For that reason the Mercator map has been eliminated from all the modern fourth-grade geographies and replaced by hemispherical maps.

The parallels on which one reads east and west are curved on continental maps. In high latitudes the curve may be so great that the reader tracing eastward arrives at the top of the map. Habits gained from reading directions on a Mercator map would lead one entirely astray in such a case as this.

In addition to establishing directions, the network of a map provides latitude and longitude data. One looks up the latitude of a place for climatic guidance. Given the latitude, altitude, and distance from sea influence, one makes comparative judgments on length of growing season and temperature. To the geographer, latitude is of major importance in interpreting a region, while longitude is of little significance in this respect. However, there are occasions when longitude is useful. Seeking to find an unknown place, one obtains its latitude and longitude from the index of an atlas and, by using the network, speedily locates it on a map.

(3) *Map symbols.* Symbols vary with the type of map. The general-purpose map of today is a political-physical map in marked contrast to the political map which was the backbone of geographies several decades ago. The political-physical map shows surface features upon which the political

boundaries and other man-made features are superimposed. The surface is shown by color-bands of green, yellow, and various shades of brown and red, with contour lines marking their borders. The range of elevation in each color-band is shown in the legend. The approximate steepness of slope can be estimated by measuring the widths of the color-bands. Irregularities of surface within any one color-band are shown on large-scale maps by hachures or shadings.

The man-made features such as political boundaries, cities, canals and railroads are shown in black or crimson. The great advantage of showing these man-made items in their physical setting is that man-nature relationships are emphasized. The political map with its patchwork of blue, yellow, pink, and lavender presents colors without definition. The modern geography texts have substituted for the political maps the far more effective political-physical maps.

In addition to the general-purpose map, every geography text furnishes many special-purpose maps. Especially useful are those which portray rainfall; population density; distribution of crops, livestock, forests, and minerals; and the detailed layout of cities.

Map reading, like any other reading, needs to be properly graded. Leading the child step by step from simple maps to those of greater complexity develops skill and ability in map reading which may finally result in the atlas habit. He will have the joy of personal exploration and discovery of the world as it is portrayed by maps.

A set of physical-political wall maps is essential for grade five and onward. They not only are indispensable tools for geography, but are also needed for the study of history.

Among the recommended maps are:

The Goode Physical Series Maps. Chicago, Illinois: Rand, McNally and Company.

(These are truly physical-political maps, but they are listed in the catalogue as Physical series. Dr. Goode was the master map maker who convinced the educators of the value of physical-political maps.)

Denoyer-Geppert Physical-Political Maps. Chicago, Illinois: Denoyer-Geppert Company.

Nystrom Landform Series. A. J. Nystrom and Company, Chicago, Illinois.

(These are physical-political maps.)

Reality Political-Physical Maps. Weber Costello Company, Chicago Heights, Illinois.

For the elementary school, the following wall maps should be acquired in the order named:

Physical-political wall maps

1. The World (on an equal-area projection. Beware of the Mercator projection.)
2. The United States
3. North America
4. Europe
5. Asia
6. South America
7. Africa

Note: The world map will suffice for work on Australia.

Slated or blackboard maps are convenient, especially those of the United States, Europe, and the world. Wall maps of population density, rainfall of the world, and also of the separate continents, are of great value.

Even though the schoolroom be well equipped with wall maps, an atlas is necessary. In the first place, an atlas has an index. When one seeks the location of an utterly unknown place, it is futile to hunt all over map after map. The index of an atlas is the only sure guide, and children should be trained in its use. In the second place the atlas gives even greater detail than the wall map, and a good atlas contains many types of maps, such as rainfall, temperature, product, population, and city. The purchase of a large, heavy atlas made up of political maps, crammed with names of small places, is a waste of money as far as its usefulness to children is concerned. Furthermore, that type of atlas has to have its own special table upon which to be opened. An atlas which can be placed on a pupil's desk is the useful type to purchase. The J. Paul Goode *School Atlas* is the desk-size atlas which offers the greatest number of high quality color-band physical-political maps, rainfall, temperature, vegetation, population density, city insets, and economic maps. It is available for about four dollars from Rand McNally and Company.

Outline maps in the hands of children offer a medium for recording data, for fixing locations, for presenting relationships. Few teaching tools carry the appeal, coupled with economy, of paper outline maps obtainable from many school supply companies. If funds are not available for all the outline maps that should be used, direct children to trace the base map upon which they are to work. It is a waste of time for children to draw maps freehand because the result is so erroneous that further work on such a base is misleading.

Furthermore, the children are given a misconception of map making. Maps are not drawn freehand; they are drafted with mathematic precision from definite measurements made in the field. It is true that when there is no map at hand, one may draw a rough sketch to illustrate a point. A child giving a chalk talk may make a hasty sketch on the board. A teacher will find that she can make a point clear by such blackboard sketches. But these sketches are of small areas and take but a moment or two to make.

Value of Pictures

Photographs are source material, fundamental to geography whether in the fourth grade or in the graduate school. One of the basic research procedures of the geographer is the field survey, reconnaissance over larger areas and detailed studies of smaller areas. He records his findings in an area by mapping and by photography. Children studying geography learn at the outset to use these two fundamental source materials —photographs and maps. Photographs provide opportunity for observing realities. They aid greatly in making terms meaningful, thus guarding against verbalism. However, children will not observe fully by hurriedly looking at many pictures. Through a close study of a carefully selected series of photographs, children will gather authentic geographic ideas. The textbooks contain a goodly number of well-selected pictures of actual landscapes and provide study directions which aim to develop picture-reading abilities.

To supplement the textbook there are high-quality, geographic pictures available from several sources, the most notable of which is the National Geographic Magazine published by the National Geographic Society, Washington, D. C. Back numbers of the magazine are available in secondhand bookstores. An investigation in the neighborhood attics may net good results. The National Geographic Magazine publishes a weekly, *The Geographic News Bulletin*, thirty issues throughout the school year for only twenty-five cents. Many teachers and children find it helpful to mount and file pictures from these and other magazines and newspapers. The mounting can be inexpensively done by using tagboard. If the tagboard is cut in letter size, the pictures can be conveniently filed in boxes and later, when the collection is large, perhaps a filing case might be obtained.

Stereographs are excellent types of pictures to study and enjoy. The third dimension makes photographs fascinating to both children and adults. There is a stereoscope on a stand-

ard which is a good piece of schoolroom equipment. The Keystone View Company, Meadville, Pennsylvania, handles the stereoscopes and has carefully selected sets of pictures on more than thirty geography units.

Mounted pictures and stereographs are for the use of children individually. In order to have a sizeable group of children view a picture at the same time, a projector is necessary. By far the most useful classroom machine is an opaque projector. In it, one can show pictures, maps, statistical tables, songs, and even pages in a book. This machine is about as expensive as a lantern-slide projector, but far more useful. Recently there has been made available a new type of transparent projector for about half the price of the lantern-slide machine. This low-priced machine has the advantage of using 35 mm. films instead of the more expensive and also breakable 3 x 4 inch lantern slides. The Society for Visual Education, Inc., 100 East Ohio Street, Chicago, Illinois, handles these lanterns and also the film-strips, called Picturols, on social science subjects. A film-strip costs one or two dollars and has twenty to forty pictures; some strips are in black and white; others are in color.

Statistics and Graphs

Statistics and their representation in graphs are fundamental in the study of geography. This raises the need for correlation with arithmetic. The gradation of difficulty in graph work depends largely upon the child's mastery of the arithmetic tool. In this course of study the various steps in graph making are in accordance with the course of study in arithmetic and the needs of geography.

The statistical sources which are recommended for the school library are given in the order in which they should be acquired. These annual publications do not have to be purchased each year, but should be renewed at least every three years.

U. S. Department of Agriculture: *Agricultural Statistics.* Washington, D. C.: Superintendent of Documents, $.75, paper bound.

New York World-Telegram: *The World Almanac.* Available in local bookstores, $.75, paper bound.

U. S. Department of Commerce: *Foreign Commerce Yearbook.* Washington, D. C.: Superintendent of Documents, $1.00, buckram bound.

U. S. Department of Commerce: *Statistical Abstract of the United States.* Washington, D. C.: Superintendent of Documents, $1.50, buckram bound.

SECTION III—GRADE THREE

FOOD, CLOTHING, AND SHELTER OF IOWA PEOPLE TODAY AND IN PIONEER DAYS

Program of Units With Suggested Timing

Units on Food

I.	Dairy Products	2 weeks
II.	Grains	4 weeks
III.	Meats	2 weeks
IV.	Vegetables	2 weeks
V.	Fruits and nuts	2 weeks
VI.	Sugar	2 weeks

Units on Shelter

I.	Pioneer homes	4 weeks
II.	Building materials in modern homes	4 weeks
III.	Heating and lighting	3 weeks

Units on Clothing

I.	Wool	3 weeks
II.	Cotton	2 weeks
III.	Linen	1 week
IV.	Silk	1 week
V.	Other Materials	1 week

General View

The third grade study centers upon the simple processes by which raw materials are produced and converted into consumption goods. It is not a study of the regional distribution of industries. For instance there is the study of the process of cutting logs into lumber but no discussion of the distribution of the lumbering industry throughout the United States since that requires the use of maps which are beyond the readiness of the average third grade child.

Nothing is to be gained by forcing map reading at too low a level. While the third grade may be handling some geography material, maps have little if anything to contribute to this

stage of learning. To thrust third graders into a new language —that of maps—while they are still struggling with the mechanics of the printed page is wasted effort. Most of the third grade books contain no maps; the few which do have maps make little use of them.

An example of one of the major understandings to be attained is shown in the following paragraph.

> "The lumber for our houses comes from sawmills. The sawmills are located in or near forests. Men fell the trees in the forests with saws and axes. They trim off the branches and make the logs ready for their journey to the sawmills. Logs are floated downstream, or are hauled by wagon, or are carried on railway flat cars to the sawmill. There the logs are squared and fed into rapidly revolving saws which cut them into long boards. Lumber is used for building frame houses and also for doors, window frames, and flooring in brick and stone houses. Furniture is manufactured of wood. For telephone poles and fence posts, logs, after the bark has been removed, are cut into various lengths. For the railway ties, logs are squared and cut to the proper length. Usually telephone poles, fence posts, and railway ties are treated with a tar product to prevent decay. Houses are painted to preserve the wood, and furniture is stained, then waxed or varnished."

There is no inflexible order in which the topics in this year's work are to be taken up. It seems natural to study foods in the autumn, since this is the harvest season which culminates in the Thanksgiving festival. The winter and spring make a favorable setting for the study of clothing and shelter.

As to method, it is suggested that the unit plan be used throughout. This involves participation by the pupils in setting up problems to be studied; reading and assimilation of a variety of reference material in answering questions raised; presentations of material in the form of class discussion, individual or committee reports; organization of material in outline or summary form for review; and some sort of culminating activity—a unit test, assembly program, or both.

The unit will usually be more successful in promoting real understanding if supplemented by excursions to points of interest, and by activities designed to clarify concepts of materials studied. At the end of each unit pupils should be encouraged to evaluate their own work and suggest improvements in methods of attack for future undertakings.

Reference Books for Third Grade Children

Food, Clothing, and Shelter Today

Shepherd, Edith P.: *Geography for Beginners,* Book I. Rand, McNally, 1931.

Carpenter, Frank and Frances: *The Foods We Eat.* American Book, 1925. *The Clothes We Wear,* 1926. *The Houses We Live In,* 1926.

Chamberlain, J. F.: *How We Are Fed.* Macmillan, 1925. *How We Are Clothed,* 1926. *How We Are Sheltered,* 1925.

Freeland, G. E., Ayer, and Moore: *How People Work Together.* Scribners, 1938.

Petersham, Maud and Miska: *The Story Book of Food,* J. C. Winston, 1933. *The Story Book of Earth's Treasures,* 1935. *The Story Book of Things We Use,* 1933. *The Story Book of Things We Wear,* 1939.

Smith, J. R.: *Home Folks.* J. C. Winston, 1927.

Dorris, F. E. and Tapp, M. V.: *Learning to Look at Our World.* Silver Burdette, 1943.

Food, Clothing, and Shelter in Pioneer Days

Nida, S. H.: *Letters of Polly, the Pioneer.* Macmillan, 1931.

Myers, M. F. and Embree, L.: *A Story of Pioneers.* Bobbs-Merrill, 1937.

Nida, W. L.: *Following the Frontier.* Macmillan, 1924.

Mahan, Bruce and Gallagher, Ruth: *Stories of Iowa for Boys and Girls.* Macmillan, 1929.

McGuire, E. and Phillips, C. A.: *Adventuring in Young America.* Macmillan, 1929.

Bass, F.: *Stories of Pioneer Life.* D. C. Heath, (Revised Ed.)

Aurner, C. R.: *Iowa Stories,* Book I. Clip Press, Iowa City, Iowa, 1923.

For the Teacher: Gillett, N. and Snedaker, M.: *Course of Study in Pioneer Life,* University of Iowa, Extension Bulletins, College of Education Series No. 34, 1935, $.50.

Units on Food

Objectives

I. Through many concrete experiences in the study of foods, pupils should come to some understanding of the following principles:

A. We depend largely upon Iowa farms for our foods, but not so completely as did the pioneers.

B. Many people work together to provide our food supply.

C. Cleanliness is necessary in the preparation of all food.

D. In early days the kinds of food eaten were limited to those of the immediate environment.

E. With advance in transportation, refrigeration, and methods of serving foods, it has become possible to secure almost all foods at any season of the year.

II. The unit method will begin to develop the following various skills and abilities:

A. Ability to locate material, use the table of contents, and index.

B. Growth in power of accurate comprehension.

C. Ability to organize material in a simple fashion in the light of the problem at hand.

D. Ability to remember the important points.

III. Certain desirable social attitudes and appreciations should be natural outcomes of such studies.

Possible Approaches to Food Units

Enumeration of foods eaten by the children for breakfast.

Listing the different men who deliver food to the home: the milkman, the grocer, the butcher, the baker.

Stimulation of interest by colored pictures of foods attractively mounted and displayed around the room or on the bulletin board.

An excursion to the grocery store.

From one of these possible approaches, or from some other that meets the need of the particular group, the interest of children in tracing to their sources the foods found in the home should be stimulated.

Unit I—Dairy Products

Setting Up Problems

Questions may be raised by the pupils, listed on the board by the teacher, transferred to a permanent chart, and checked off as answers are found. Questions will be added as the work advances.

Possible problems regarding the study of milk:

Where does the grocer or milkman get it?
How is it transported from farm to town or city?
How is the milk kept from spoiling?
Did the pioneers have iceboxes?

How is milk kept without ice?
What is meant by "pasteurized" milk?
What products are made from milk?
Why should children drink milk? How much should they drink?
Do adults need milk, too?

Reading and Assimilation

Reference books should be given out with due regard for individual differences in reading ability. With less mature pupils easy reading material with definite page references should be given. More able children may learn to locate their own page references by the use of table of contents or index. Pupils may read with the motive of finding satisfactory answers to the problem-questions set up. Some topics may be given out for special reports by individuals or groups.

Subject Matter Outline

I. Milk an essential food
   A. Milk builds good teeth.
   B. Milk builds strong bones.
   C. Milk builds strong muscles.

II. Steps by which milk reaches the market
   A. Milking of cows on dairy farms.
   B. Pasteurizing and bottling on the dairy farm.
   C. Pasteurizing and bottling in the city dairy plant.
   D. Delivery to homes, hotels, and stores.

III. Location of dairy farms
   A. On the border of towns.
   B. Within a day's journey of cities.

IV. Special dairy breeds
   Jersey, Holstein, Guernsey, Ayrshire.

V. Feed for dairy cows
   Grass, hay, silage, bran, grains, cottonseed meal, soybean meal.

VI. Care and cleanliness necessary to insure pure milk
   A. Cows must be healthy.
   B. Barns must be clean.
   C. The men who feed and milk the cows must be healthy and clean.

VII. Milking

A. Time—night and morning.

B. Milking by hand.

C. Milking by machine.

VIII. Dairy products

Milk, cream, butter, cheese, condensed milk, malted milk, ice cream.

Suggested Activities

Choice should be made from among the suggestions given in the light of local conditions.

Visit a dairy farm.

Visit a dairy. See milk pasteurized and bottled.

Visit a creamery. See the cream separator, the churning of butter. Contrast with methods of pioneer days.

Visit a cheese factory.

At school make butter, Dutch cheese, ice cream, or other products.

Culminating Activities

An assembly program with short talks on various phases of the dairying unit may be prepared and given for another class. Talks should not be memorized but should be carefully thought through, given and criticized before the class. Dairy products made in school might be served to the guests, if desired.

A unit test may be given. This may be objective, either true-false, multiple choice, completion, or matching.

Vocabulary

To guard against the danger of verbalism, attention must be given to the meanings of words and phrases. In the milk unit, the following words and phrases might be chosen for special attention:

separator	pasteurized milk	Holstein
churn	raw milk	Guernsey
silo	dairy cattle	Jersey
alfalfa	silage	chewing the cud

References

Shepherd: *Geography for Beginners,* Book I, pp. 153-156.
Chamberlain, J. F.: *How We Are Fed,* pp. 43-57.
Freeland, Ayer, and Moore: *How People Work Together,* pp. 35-43.
Waddell, Nemec, and Bush: *Helpers.* Macmillan, 1937, pp. 49-56. (Very easy).
Carpenter: *The Foods We Eat,* pp. 46-59.
Unit Study Books: *The Dairy. Farm Animals.* American Educational Press, 580 Fifth Avenue, New York City.
McIntire, Alta: *Milk.* Follett, Chicago.
Horn, Wickey, and Horn: *We Live On a Farm,* (Primer). Ginn, 1940.
Fox, Florence: *Lily of Willowreed.* American Book, 1937.

Unit II—Grains: Wheat, Corn, Oats

A study of these grains may be approached through the pupil's interest in tracing bread back to its source. This interest might grow naturally out of the preceding unit. If desired, the unit might begin with corn, the interest growing out of corn raised on farms nearby. The method used would be the same as that outlined in detail in connection with the study of milk.

Wheat

I. Content
   - A. Methods of plowing and planting wheat fields
   - B. Methods of harvesting, past and present
   - C. Hauling to mill or elevator
   - D. Milling into flour
   - E. Uses of wheat
   - F. Primitive methods of grinding wheat into flour
   - G. Baking bread
     1. In the home
     2. In the bakery

II. Suggested activities
   - A. Visit a bakery
   - B. Make biscuits or cookies at school

III. Vocabulary

millstone	cereals	kernel
reaper	shocks	harrow
scythe	threshing	drills
tractor	combine	straw
binder		

IV. References

Shepherd: *Geography for Beginners,* Book I, pp. 114-120.
Chamberlain: *How We Are Fed,* pp. 7-18.
Carpenter: *The Foods We Eat,* pp. 7-17.
Petersham: *The Story Book of Wheat.*
Harter: *Bread.* Follett.
Petersham, Maude and Miska: *The Story Book of Food.*

Corn

I. Content
   A. Climate needed for corn—hot summers and plenty of rain
   B. Uses of corn.

II. Suggested activities
   A. Make corn bread.
   B. Try to grind some field corn between two flat stones and make corn meal as the Indians did.
   C. Make an exhibit of things made of corn.

III. References

Shepherd: *Geography for Beginners,* Book I, pp. 107-113.
Carpenter: *The Foods We Eat,* pp. 27-34.
Petersham: *The Story Book of Corn.*
Aurner: *Iowa Stories,* Book I, pp. 104-109.
Nida: *Letters of Polly, the Pioneer,* pp. 31-39, 144-150.

Oats

I. Content
   A. Time of planting in Iowa as compared with corn
   B. Time and process of harvesting as compared with corn
   C. Uses of oats

II. References

Shepherd: *Geography for Beginners,* Book I, pp. 121-123.

Unit III—Meats

Subject Matter Outline

I. Varieties of meats
   A. Beef—from cattle
   B. Pork, bacon, ham—from hogs
   C. Veal—from calves
   D. Mutton—from sheep
   E. Poultry—chickens, turkeys, geese
   F. Fish

II. By-products of the meat packing industry such as lard, leather, buttons
III. Ways of preserving meat
Refrigerating, drying, salting and smoking, canning

Suggested Activities

I. Visit a butcher shop.
II. Visit a farm where hogs are raised.
III. Visit a chicken farm.
IV. Visit a chicken hatchery.
V. Visit a refrigerating plant where individual families may have lockers.
VI. Visit a fish market or fish hatchery.

Vocabulary

veal	poultry	lasso
pork	Hereford	cannery
beef	brooder	roundup
incubator	ranch	stockyard
mutton	cowboy	refrigerator

References

Shepherd: *Geography for Beginners,* Book I, pp. 138-152.
Freeland, Ayer, and Moore: *How People Work Together,* pp. 53-65.
Carpenter: *The Foods We Eat,* pp. 35-45.
Nida: *Letters of Polly, the Pioneer,* pp. 51-69, 108-112.
Mahan and Gallagher: *Stories of Iowa for Boys and Girls,* pp. 193-199.

Unit IV—Vegetables

Approach

The vegetable unit may easily develop from one of the following sources:

Interest in the home garden
A visit to a truck garden
A visit to the vegetable market

Content

I. Many varieties of vegetables and how the varieties grow
II. Health values of vegetables
III. Methods by which vegetables are stored for the winter today; in pioneer days

Suggested Activities

I. Visit a truck garden.
II. Visit a vegetable market.
III. Plant a school garden.
IV. Can the products of the school garden in the fall.
V. Make vegetable soup as a culmination of the unit.

Unit V—Fruits and Nuts

Content

I. Varieties of fruits and nuts grown in Iowa
II. Fruits and nuts brought from other lands—the banana, the pineapple and the coconut in particular
III. Methods of presering fruits
IV. The many workers needed to provide fruits and nuts

Suggested Activities

I. Visit an orchard.
II. Visit a place where fruit is canned.
III. Find out the method of home canning and report to class.
IV. Visit a grocery store. Find out the ways fruits are sold—fresh fruits, canned fruits, fruit juices, jellies and jams.

Unit VI—Sugar

Content

I. Varieties of sugar and sugar products—honey, cane sugar, beet sugar, maple sugar
II. Processes involved in the production of these various sweetenings
III. Health values of sugar—place in diet

Suggested Activities

I. Visit a farm where bees are kept.
II. Secure pictures of sugar cane.
III. Try making maple sugar.

References

Petersham: *The Story Book of Sugar.*
Chamberlain: *How We Are Fed,* pp. 78-92.
Carpenter: *The Foods We Eat,* pp. 139-150.
Shepherd: *Geography for Beginners,* Book I, pp. 133-138.
Nida: *Letters of Polly, the Pioneer,* pp. 122-131.

Units on Shelter

Objectives

Through varied experiences connected with the study of the raw materials of shelter, the children should be brought to some appreciation of the following understandings.

I. The need for shelter is universal, although the purposes for which shelter is needed may vary with climatic conditions.

II. Pioneer people use materials that are available in the immediate environment.

III. Modern methods of transportation make it possible to secure materials from a distance.

IV. Many people work together in providing shelter.

Possible Approaches to Units on Shelter

I. Discussion of children's own homes, construction materials, surroundings and neighborhood

II. Developing shelter as another primary need of life

III. Watching the construction of a new building

Unit I—Pioneer Homes

I. Suggested types for study
   A. Log cabins
   B. Sod houses
   C. Stone houses

II. References

Chamberlain: *How We Are Sheltered,* pp. 66-71.
Myers, M. F. and Embree, L.: *A Story of Pioneers.*
Nida, S. H.: *Letters of Polly, the Pioneer,* pp. 18-27, 47-51, 91-94.
Aurner: *Iowa Stories,* Book I, pp. 72-82, 91-104.
Mahan and Gallagher: *Stories of Iowa Boys and Girls,* pp. 184-192.

Unit II—Building Materials Used in Modern Homes

Lumber

I. Content
   A. Advantages and disadvantages of wood as a building material
   B. Sources of the lumber supply—the forests.
   C. Process of turning trees into materials for home building and furnishing, the logging camp, the sawmill

II. Suggested Activities
- A. Visit a lumber yard.
- B. Make a list of some of the different kinds of wood with their uses.
- C. Experiment with driving nails through hard and soft woods.
- D. Make a collection of different kinds of woods.

III. Vocabulary

flume	planing mills	lumberjacks
shingles	beams	laths
sawmills	rafts	flooring

IV. References

Shepherd: *Geography for Beginners,* Book I, pp. 11-22.
Freeland, Ayer and Moore: *How People Work Together,* pp. 162-170.
Carpenter: *The Houses We Live In,* pp. 31-55.
Chamberlain: *How We Are Sheltered,* pp. 72-92.

Stone

I. Content
- A. Reasons why stone is good building material
- B. Where building stone comes from
- C. Method of taking stone from the quarry
- D. Preparing the stone for cutting
- E. Kinds of stone used in buildings—sandstone, limestone, granite, marble, slate

II. Suggested Activities
- A. Visit a stone quarry.
- B. Learn to identify the different types of stone from specimens and from buildings.

III. Vocabulary

quarry	limestone	granite
quarrying	blasting	marble
mason	slate	sandstone

IV. References

Shepherd: *Geography for Beginners,* Book I, pp. 23-28.
Freeland, Ayer, and Moore: *How People Work Together,* pp. 171-176.
Chamberlain: *How We Are Sheltered,* pp. 101-110.
Carpenter: *The Houses We Live In,* pp. 56-68.

Bricks, Cement, and Concrete

I. Content
- A. Kinds of buildings made of bricks

B. Reasons why brick is a better material than wood when buildings are close together
C. Method of making bricks from clay
D. Common things made of concrete—walks, driveways, roads.
E. Materials from which cement is made
F. Process of making cement and concrete
G. Uses of concrete

II. Suggested Activities
A. Visit a brickyard.
B. Observe the work of a bricklayer in the construction of a new building.
C. Watch the mixing and pouring of concrete in new construction.

III. Vocabulary

kiln	firebrick	pressed brick
adobe	sun-dried brick	clay pit
concrete	stucco	mortar

IV. References

Shepherd: *Geography for Beginners,* Book I, pp. 29-33.
Freeland, Ayer, and Moore: *How People Work Together,* pp. 171-176.
Carpenter: *The Houses We Live In,* pp. 69-83.
Chamberlain: *How We Are Sheltered,* pp. 93-100, 111-116.

Iron and Steel

References

Carpenter: *The Houses We Live In,* pp. 84-97.
Petersham, Maud and Miska: *The Story Book of Iron and Steel.*

Unit III—Heating and Lighting

The Story of Fire

I. Content
A. Early uses of fire
B. Early way of making fire
C. Development of heating devices—fireplaces; wood stoves; coal stoves; gas stoves; coal, oil, and gas furnaces
D. Fuels—wood, coal, petroleum, natural and artificial gas

II. Suggested Activities
A. Find out how homes are heated.

B. Find out what kind of fuel is used.
C. Find out what may be done to make homes safer from fire.
D. Invite a member of the fire department to speak to the class.
E. Visit a fire department station.

III. Vocabulary

miner	kerosene	gas
charcoal	petroleum	gasoline

The Story of Light

I. Content
   A. Evolution of lighting devices—fire, burning stick, pine knots, candle, lamp, gas light, electric light
   B. Advantages of electricity

II. References

Shepherd: *Geography for Beginners,* Book I, pp. 40-50.
Freeland, Ayer, and Moore: *How People Work Together,* pp. 177-184. 185-193.
Petersham, Maud and Miska: *The Story Book of the Earth's Treasures.*
Carpenter: *The Houses We Live In,* pp. 143-173.
Chamberlain: *How We Are Sheltered,* pp. 128-156.

Units on Clothing

Objectives

I. People use for clothing materials that are available and are adapted to the climatic conditions under which they live.

II. Our pioneer ancestors labored under difficulties in providing clothing for their own use.

III. Modern machinery, division of labor, and inventions have made it possible to use many types of fabrics in new ways to make clothing that is appropriate to modern conditions of life.

IV. Many workers are involved in the processes of supplying our clothing needs.

Possible Approaches

I. Developing clothing as another primary need of life
II. Noticing change from summer to winter clothing, or vice versa

III. Examining cotton bolls or silkworm cocoons
IV. Visiting a farm where sheep are raised

Unit I—Wool

Content

I. Raising of sheep
II. Shearing of sheep
III. Baling wool and shipping to the textile mill
IV. Work done in the mill

Suggested Activities

I. Visit a sheep farm at shearing time.
II. Visit a woolen mill.
III. Secure part of a fleece from a farmer.
IV. "Scour" and card the wool from the fleece. Cards may be bought from L. S. Watson and Company, Leicester, Massachusetts. (Old Whittemore Patent No. 9 Wool Cards)
V. Try to spin yarn on a spinning wheel.
VI. Construct a small loom and weave the woolen yarn into cloth.
VII. Invite a person who knows how to card and spin wool to demonstrate.
VIII. Experiment with washing woolen cloth in hot and in lukewarm water to measure shrinkage.
IX. Examine wool fibres through the microscope to see the tiny scales of which they are composed.

Vocabulary

fleece	woof	herders
shearing	spindle	clipper
scouring wool	distaff	flock
carding wool	sheepfold	loom
warp		

References

Shepherd: *Geography for Beginners,* Book I, pp. 69-75.
Freeland, Ayer, and Moore: *How People Work Together,* pp. 118-125.
Shillig, Elnora E.: *The Four Wonders,* pp. 37-56.

Carpenter: *The Clothes We Wear,* pp. 34-49.
Bonser and Mossman: *Industrial Arts for the Elementary School.*
Yale: *Clothes We Wear. Magic of Cloth.* Follett Publishing.
Nida: *Letters of Polly, the Pioneer,* pp. 69-76.
Mahan and Gallagher: *Stories of Iowa for Boys and Girls,* pp. 189-191.
Aurner: *Iowa Stories,* Book I, pp. 87-89.

Unit II—Cotton

Content

I. Appearance of the cotton plant and the cotton field in bloom
II. Location for the growing of cotton—a sunny, hot climate
III. Picking of the ripe cotton bolls
IV. Transporting the raw cotton to the gin
V. Separating the seed from the cotton fibers by means of the cotton gin
VI. Sending the baled cotton to the mills to be woven into cloth
VII. Processes involved in making raw cotton into cloth
VIII. Uses of cotton
IX. Uses of cotton seeds

References

Shepherd: *Geography for Beginners,* Book I, pp. 62-68.
Freeland, Ayer, and Moore: *How People Work Together,* pp. 108-117.

Shillig, Elnora E.: *The Four Wonders,* pp. 5-32.
Petersham, Maud and Miska: *The Story Book of Cotton.*
Carpenter: *The Clothes We Wear,* pp. 10-24.

Unit III—Linen

Content

I. Appearance of flax plants
II. Location needed for growth—a damp, foggy climate
III. Process of extracting fibers from stem, and processes involved in making fibers into linen cloth
IV. Particular advantages of linen as a fabric
V. Uses of linen

Suggested Activities

I. Plant flax seed in box.
II. Try extracting fibers from stem of flax plant.
III. Try spinning a thread of linen on a flax wheel.
IV. Make a collection of things made of linen.

References

Shepherd: *Geography for Beginners,* Book I, pp. 80-84.
Freeland, Ayer, and Moore: *How People Work Together,* pp. 135-139.
Shillig, Elnora E.: *The Four Wonders,* pp. 71-90.
Carpenter: *The Clothes We Wear,* pp. 25-33.

Unit IV—Silk

Content

I. Life cycle of the silkworm
II. Food of the silkworm and care needed
III. Processes involved in manufacturing silk

Vocabulary

cocoon	skein
raw silk	reeling
rayon as a silk substitute	spun silk

References

Shepherd: *Geography for Beginners,* Book I, pp. 76-79.
Freeland, Ayer, and Moore: *How People Work Together,* pp. 126-134.
Petersham, Maud and Miska: *The Story Book of Things We Wear.*
Shillig, Elnora E.:*The Four Wonders,* pp. 93-132.
Carpenter: *The Clothes We Wear,* pp. 50-60.

Unit V—Other Materials Used for Clothing

Leather

I. Content
  A. Kinds of skins used for shoes and gloves
  B. Process of tanning leather
II. References
  Shepherd: *Geography for Beginners,* Book I, pp. 85-90.
  Freeland, Ayer, and Moore: *How People Work Together,* pp. 140-149.
  Carpenter: *The Clothes We Wear,* pp. 123-128.

Furs

I. Content
   A. Kinds of furs
   B. Methods of trapping animals, trading furs, and preparing them for market

II. References
   Shepherd: *Geography for Beginners*, Book I, pp. 91-95.
   Carpenter: *The Clothes We Wear*, pp. 142-157.

Rubber

I. Content
   A. Sources of raw rubber
   B. Process of preparing raw rubber for use
   C. Clothing made of rubber

II. References
   Shepherd: *Geography for Beginners*, Book I, pp. 96-102.
   Carpenter: *The Clothes We Wear*, pp. 158-170.

SECTION IV—GRADE FOUR

TRANSPORTATION; FOOD, CLOTHING, SHELTER OF PEOPLE TODAY IN DISTANT LANDS

Program of Units and Suggested Timing

Unit	I	Transportation	5 weeks
	II	People in Hot, Wet Lands	5 weeks
	III	People of Hot Deserts	4 weeks
	IV	Mediterranean Farmers (may be omitted)	2 weeks
	V	Mountain Farmers	4 weeks
	VI	Delta Farmers	4 weeks
	VII	Fishermen	4 weeks
	VIII	Arctic People and Polar Explorers	4 weeks

In the third grade a study of the raw materials of food, clothing, and shelter introduced pupils to certain social concepts. An important subject is yet to be taken up before the more formal textbook study of definite regions is to be attempted. The subject is transportation, a study of the modes of travel, and of carrying goods from one place to another.

Unit I—Transportation

Objectives

Generalizations are best arrived at through many concrete experiences. These experiences may be gained firsthand through excursions and real projects, or vicariously through reading, pictures, and other visual aids. Through such experiences children should come to some appreciation of the following:

A. Modern transportation is the result of man's inventive genius.

B. It has taken thousands of years to evolve the complicated transport machines of today.

C. Without adequate transportation each community would have to be practically self-sufficient.
D. Transportation depends upon the cooperation of many workers.

Possible Approaches to the Transportation Unit

A. Vacation experiences—travel by train, motor car, boat or airplane
B. A trip to an airport or railway station
C. An excursion to some point of interest in bus or in automobile
D. Study of pictures of different ways in which man travels and transports his goods
E. Bringing to school models of boats, trains, airplanes
F. Inviting representatives of transportation systems to talk to the class

Method of Developing the Unit

The order in which the parts of the unit are taken up should be flexible, following the problems raised by the class. Pupils should participate freely in the raising of questions to be answered by reading and assimilation, by excursions, or by listening to talks by experts invited into the classroom. Some committee work should be done, and recitations should be varied in form, including discussions to answer the questions raised, individual and committee reports.

Reading should not be confined to a single text. Reference books should be examined as to difficulty and should be given out with due regard to individual differences in reading ability.

Outline of Content

A. Development of land transportation
   1. Travel on foot
      Packs carried on backs
      Letters carried by men
      News and messages carried long distances by swift runners
   2. Domesticated animals used in transportation
      a. The ox is suitable for heavy work.
         The ox is strong.
         It thrives on cheap food.

b. The camel is used for desert travel.
It has the ability to close its nostrils when the air is full of sand.
It can drink enough water at one time to last several days.
It stores food in its hump.
The thick pads on its feet keep it from sinking into the sand.

c. Dogs are used in cold regions to pull sleds.
Dogs do not sink easily into the snow.
Trained dogs work together well.
Dogs can sleep curled up in the snow.
They can get along with little food.

d. Horses, mules, donkeys, burros are used for various purposes in transportation.
Large, heavy horses are used for work where speed is not necessary.
Fast horses and ponies were used where speed was vital before the day of the automobile.
Saddle horses are used where good roads are lacking, or for pleasure.
Fast horses in early days carried mail and light packages (called "Pony Express").

3. Invention of the wheel and consequent evolution of vehicles
   a. Development of the wheel
   Wooden rollers or logs placed under a heavy load
   Slices cut from roller or log and fastened to two ends of a long piece of wood called an axle.
   From the solid wheel came the wheel with spokes.
   Thousands of years later came the bicycle wheel with wire spokes and rubber tires, and the automobile and airplane wheels with great balloon tires of rubber.
   b. Vehicles
   Wheelbarrow, chariot, two-wheeled cart, buggy or wagon with four wheels, stagecoach, prairie schooner, bicycle, automobile

4. Development of the railroad
   a. "Iron horse"
   Development from the horse-drawn vehicle on rails to the steam engine.
   Development from the "Tom Thumb" engine to the modern streamliner.

b. Building a modern railroad
c. Safety measures used
d. Types of passenger cars
Day coaches (air-conditioned), dining cars, sleeping cars, baggage cars, club cars, mail cars.
e. Types of freight cars
Boxcars, livestock cars, automobile cars, tank cars, flat cars, hopper cars, refrigerator cars, cabooses.
f. Difference between passenger and freight engines
g. Workers on train and tracks and in the round-house
Conductor, engineer, fireman, brakeman, porter, cook, mail clerks, machinists, section hands, trackwalkers.
h. Suggested activities:
Visit a railroad station. See the ticket office, train sheds, a streamlined train, if possible.
Take an actual ride on a train from station to station.
Visit a freight office.
Construct a freight train in miniature, showing different kinds of cars.

5. Development of the motor car
a. "Horseless carriage"
b. Henry Ford's first inexpensive car
c. Different kinds of modern cars
Automobiles, trucks, taxicabs, motorcycles, trailers, buses.
d. Uses of automobiles
e. People who work together to give us motor car transportation
f. Dangers in motor car travel; safety suggestions
g. Suggested activities:
Make a set of safety rules.
Make a study of the motor car. Find out as much as you can about its parts.
Find out about different kinds of roads and how they are built.
Visit a bus station.
Visit a road crew at work.

B. Water transportation

1. The story of boats and ships

a. Rafts made of two or more logs fastened together were the first means of transportation on water.
The raft was pushed by long poles or paddles.
Limitations of the raft: not useful for fast travel; difficult to take upstream; of little value in rough water.

b. Dugout—a boat made of a long log hollowed out with stone tools and fire

c. The birch bark canoe used by the Indians

d. Boats and ships
The galley propelled by oarsmen, sailing vessels, ships driven by steam, gas, oil, and electric engines.

C. Transportation by air

1. Early attempts at flying
Unsuccessful attempts
The first successful attempt with balloons—bags filled with gas lighter than air
Airships, or "dirigibles"; the "Graf Zeppelin"
Airplanes, heavier than air, must keep moving to stay in the air.

2. Uses of airplanes
Air mail
Fast transportation for passengers over land and ocean
Hauling express and light freight

3. Suggested activities:
Visit an airport.
Write a letter and send it air mail.
Take an imaginary trip by airplane.

Vocabulary

It is especially important that pupils develop meanings of new words and terms as they study. Otherwise study fosters mere verbalism, memorizing words without appreciating their significance. The following words are suggested as needing attention in connection with the transportation unit.

A. Land transportation

pack	trackwalkers	ties
litter	caravan	freight
burro	trolley	Tom Thumb engine
roadbed	red caps	air-conditioning
drag, or travois	roundhouse	railroad yards
prairie schooner	chariot	
switch engines	mule	

B. Water transportation

funnels	mast	cabin, or stateroom
portholes	lifeboat	tug
decks	anchor	hold
bridge	pier	
	gangplank	

C. Air transportation

airport	hangar	propeller
pilot	stewardess	parachute
balloon	seaplane	aviator
blimp	"take off"	dirigible

References

Freeland, Ayer and Moore: *How People Work Together.*

Petersham, Maud and Miska: *The Story Book of Wheels, Ships, Trains, Aircraft.* J. C. Winston, 1935.

Carpenter, Frances: *The Ways We Travel.* American Book.

Dalgliesh, Alice: *American Travels.* Macmillan, 1933.

Gilchrist, Marie E. and Ogle, Lucille: *Rolling Along Through the Centuries.* Longmans, Green, New York, 1937.

Worthington, Josephine and Frank, Catherine, M.: *Our Transportation.* F. A. Owen Publishing Co., Dansville, New York, 1937.

Instructor Series of Illustrated Units: *Unit on Transportation.* F. A. Owen Publishing Co., Dansville, N. Y., $.25.

Webster, Hanson Hart: *Travel by Air, Land, and Sea.* Houghton Mifflin, 1933.

Hader, Berta and Elmer: *The Picture Book of Travel.* Macmillan, 1928.

Nathan, Adele G. and Ernst, Margaret S.: *The Iron Horse.* Alfred A. Knopf, New York, 1937.

Harter, Helen: *How We Travel.* Follett, 1936.

Bernstein, Doris: *Judy's Ocean Voyage.* American, 1932.

Johnson, Mabel Hubbard: *Jean and Jerry's Vacation.* American, 1931.

O'Donnell, Mabel: *Singing Wheels.* Row, Peterson, 1940.

Bush, Maybell and Waddell, John: *How We Have Conquered Distance.* Macmillan Co., 1937.

Chamberlain, J. F.: *How We Travel.* Macmillan, 1925.

Units II-VIII—Food, Clothing, Shelter of People Today in Distant Lands

(Building a Geographic Framework of the World)

General View

In the primary grades the child has read stories of various kinds of people and has come to realize that there are many peoples other than Americans. The location of distant lands, however, has been purely incidental. It is now time to help the child build a world framework into which he can fit the fragments of locational knowledge he may previously have acquired and add locational knowledge he subsequently will gain. Up to this time, even if the child has attempted to locate some places, there has been little, if any, analysis of location. In the fourth grade the child is introduced to the idea that each location has distinctive characteristics and that the inhabitants of each region fit their way of living (food, clothing, shelter, work, travel) to the conditions which nature set up in their homeland.

All parts of the world are not of equal complexity. For the beginner let us choose lands where people are engaged in activities so simple that the relations of food, clothing, shelter, and transportation to earth conditions are direct and easily discovered. For this reason type studies of primitive people carrying on little trade with the outside world are made. For some units, peoples of advanced civilization are selected, but only their simpler activities such as farming, fishing, herding are studied. Then, too, areas are chosen to exemplify the major classes of climatic and topographic habitats. Especially significant is the order of regions from the equator to the poles: lands of perpetual summer, of four seasons, of perpetual winter. A latitudinal concept thus built is essential to an understanding of the geographic framework of the world.

With the fourth grade the actual reading of maps and globes begins. When the first region is studied, a simple map of it is needed. Before the unit is finished, one of the teacher's tasks is to lead the child to see the position of that region on the globe. The globe should be the constant companion of the fourth grade geography class. Ideal equipment would be a six-inch globe on the desk of each pupil. Such globes on wire stands are available for less than a dollar apiece. Even though the ideal cannot be reached, there is no excuse for a fourth grade room or an ungraded room without one globe.

Globes, not wall maps, are the tools for the fourth grade. Textbook maps flat on the desk, north on the map toward north in the room, free the child in his initial ventures from many of the complications inherent in maps hanging on the wall. After correct habits in reading directions from globes, hemisphere maps, and maps of small areas have been formed, the transfer to wall maps should be comparatively simple.

Objectives

I. Understandings

A. Peoples isolated from the rest of the world must depend entirely upon local natural resources.

1. They use the materials at hand for the construction of their houses and for the making of their clothing.
2. They build their houses and select their clothes so as to be comfortable in their particular climate.
3. Having no machinery, they make everything by hand.
4. They use local plants and animals for their food.
5. They grow crops which suit the climate.
6. They plan their work in accordance with the climate.
7. Modes of travel are conditioned by surface, waterways, and availability of beasts of burden.

B. Peoples who are in contact with the rest of the world can trade and have goods they cannot produce themselves; nevertheless they have to fit their work to the local natural conditions.

1. Farmers fit their work to the climate (temperature and rainfall) and to the surface.
2. Herders make use of dry lands, rocky lands, steep slopes, cold lands which are unfit for farming.
3. On indented coasts, in sheltered waters many make a living by fishing.

C. World framework

1. Distribution of land and water: seven continents, five oceans, and major seas
2. Distance from the equator and resulting seasons
   a. On lowlands between the equator and the tropics of Cancer and Capricorn, summer lasts all year around. The noonday sun is high in the sky; part of the year it is overhead. Days and nights

are nearly the same length (12 hours) all year around.

b. Between the tropics and the Arctic and Antarctic circles are the lands of four seasons. In the summer the days are long and the sun is high in the sky; in the winter the days are short and the sun is low in the sky.

c. The nearer the equator, the longer is the summer; the nearer the poles, the longer is the winter.

d. Near the poles winter lasts all the year around.

Note: The terms *Torrid Zone, Temperate Zone,* and *Frigid Zone* were invented by ancient Greek geographers before the world beyond the Mediterranean area had been explored. In modern times, these terms are deemed erroneous, for each blankets large areas of great diversity in temperature with one term. In place of these archaic terms, modern geographers are substituting *tropics, intermediate lands, polar regions.* After the child has learned to read latitude in the fifth grade, these terms—*low latitudes, middle latitudes,* and *high latitudes*—may be used.

3. People living different distances from the equator have different climatic habitats, and consequently their ways of living vary.

II. Abilities

A. To use correctly certain technical and semi-technical terms

equator	ocean	delta
Tropic of Cancer	sea	canal
Tropic of Capricorn	continent	seacoast
	hemisphere	plains
Arctic Circle	upstream	mountain peak
Antarctic Circle	downstream	mountain pass
North Pole	source of river	falls
South Pole	mouth of river	glacier
desert	tributary	timber line
oasis	island	snow line
irrigation		

B. To use pictures in landscape reading

1. To recognize natural items in a picture: mountains, plains, seacoast, glacier, falls, river, lake, signs of temperature, signs of rainfall
2. To recognize signs of man's work: types of buildings, railroads, roads, fields

3. To infer relationships between man's work and the natural setting
   Example: Picture of people in loosely flowing robes taking down tents and packing possessions on camels. Inference is these are nomadic herders. It is a dry region; there is not much pasturage in one place. People must move to hunt grass for their animals.
4. To identify landscapes with given locations
   Example: In which one of the following locations might the picture just described have been taken—Holland, the Congo, the Sahara, Switzerland, Italy?

C. To use simple maps of small areas
1. To read symbols of land, sea, coast, river, lake, high land, low land, city.
2. To compare picture and maps and to read the symbol on the map that represents a particular item in a picture. The use of many vertical airplane photographs will help the child understand the sign language of the map.
3. To read directions on simple maps of small areas—
   Toward the top of the page is north.
   Toward the bottom of the page is south.
   To the right margin is east; to the left margin is west.
   Up is toward the source of a river; down is toward the mouth of a river.
   Up is toward the top of a hill or mountain; down is toward the bottom of a hill or mountain.

Note: Avoid the erroneous association of *up* with *north* and *down* with *south* by teaching directions with textbook maps flat on the desk, north on the map toward north in the room. Children should learn "up" means farther from the center of the earth and "down" means toward the center of the earth, and that *up* and *down* have nothing to do with the north pole and the south pole.

D. To use the globe and hemisphere maps
1. To recognize the same symbols on the globe and hemisphere maps as were already learned on maps of small areas
2. To read directions
   Toward the north pole is *north*.
   Toward the south pole is *south*.
   Face north. To the right is east, to the left is west.

3. To use the direction lines on the globe for greater exactness in reading directions
   North-south lines, east-west lines are the terms to use with fourth graders. Do not introduce the term "parallel" until the fifth grade, and the term "meridian" until the sixth grade.
4. To recognize each of the seven continents by name
5. To recognize each of the oceans and the Mediterranean Sea by name
6. To read comparative distances; to locate places with regard to the equator, tropics, circles, and poles not in terms of miles or latitude, but thus: A is near the North Pole; B is a little north of the equator; C is half way between the equator and the North Pole; D is nearer to the equator than is E.
7. To associate seasonal conditions with distance from the equator.
   Example: Iowa lies about half way between the equator and the North Pole; therefore, it has four seasons. The Amazon Indians live near the equator; therefore, they have summer all the time.

III. Habits and Attitudes

A. The habit of reading photographs as a substitute for actual field study.

B. The habit of locating on a map each region studied.

C. The habit of using maps as guides when traveling, either actually or in imagination

D. The habit of checking picture and map and textual information, one against the other

E. The habit of looking for explanations of man's choice of food, clothing, and shelter when reading about a region.

F. An appreciation of the new tools: maps and globe

G. Sympathy and understanding of peoples who are out of contact with the rest of the world or whose environments are not so rich as that of Iowa

H. Readiness to give primitive peoples credit for what they have accomplished without the aid of machinery

Unit II—People in Hot, Wet Lands

Chief Objective

The major geographic understanding which is the chief objective of the unit is expressed below in the language of the teacher. The child will not master an understanding by hearing it stated or by reading it himself, even if it were written in his own language. The major understanding evolves as the child assimilates materials gathered from textbook, reference books, pictures, and maps.

People who live on equatorial lowlands experience only the one season—summer—year in and year out. The noonday sun is always high in the sky and the days are about the same length (twelve hours) throughout the year; consequently there are no temperature seasons. Heavy rains fall practically all year around. The landscape is always green. Dense, broad-leafed evergreen forests prevail, except where man has cleared the land and continues to occupy it. Should man abandon a clearing, in a surprisingly short time the forest again is master.

In this tropical-rain forest habitat, life is comparatively simple, especially for the natives with their sun-resistant dark skins, brown eyes, and black hair. There is some food to be had in the forests and in the streams. Contrary to the common notion, few tribes depend entirely upon fish, game, wild fruits, and nuts. Most tribes raise the larger part of their food in gardens in clearings. Planting and harvesting continue the year around since there is no frost and no dry season. In the luxuriant forest are a great variety and abundance of materials for the steep-roofed shelter that man builds to protect his family from the heavy rains. For the little clothing desired, there are many materials available. Soft, pliable bark from certain trees is pounded into thin sheets, raffia is tied, and bright-colored feathers and rattling seeds furnish decoration.

In lands of heavy rains there are many rivers, which provide the chief highways. In dugout canoes and on rafts families move from place to place to make new homes in the wilderness. By boat the natives go to trading posts which are irregularly spaced along the rivers. There they exchange forest products for knives, kettles, and cotton cloth.

Certain plants which flourish in hot, wet lands do not grow well in any other habitat. Their products the out-

side world has come to know and desire—rubber, cacao (chocolate and cocoa), mahogany, bananas, manioc (tapioca), spices, and pepper. In various sections of the equatorial lowlands there are plantations where natives are employed to grow these products for shipment to places thousands of miles away.

Materials

TEXTBOOK. A unit on peoples in hot, wet lands is incorporated in practically every one of the fourth grade geography textbooks. Some books use the Congo region as the locale, others the Amazon. A few books refer to both areas. It matters not which area is used, for either exemplifies the major geographic understanding which this unit endeavors to build. There are other areas also which illustrate the same combination of circumstances; namely, Malay, some of the East India and Philippine Islands, the Guiana coast of South America, the east coast of Central America. They may be widely separated parts of the earth, but they are in corresponding latitudinal locations. It is true that these various regions are not identical, but in the broader aspects of climate, vegetation, surface, and human occupance they are similar. Relationships which are common to all equatorial lowlands are those with which the fourth grade unit deals.

PICTURES. Most of the textbooks contain a goodly number of pictures of actual landscapes in hot, wet lands and provide study directions which aim to develop picture-reading abilities. To supplement the textbook there are available several sets of excellent pictures. The National Geographic Magazine for April, 1926, (Vol. 49, pp. 353-463) has remarkable photographs taken along the Amazon River by a party of American explorers who traveled by airplane. For the Congo Region, there is a series of twenty-five pictures selected by Zoe A. Thralls, a teacher of geography, who has also prepared a manual with study directions for each picture. Geography Unit on the Congo Region, 25 stereographs and a Teachers' Manual, Keystone View Company, Meadville, Pennsylvania.

Children's References on Peoples in Hot, Wet Lands

Tee-van, Florence D.: *Red Howling Monkey*, the tale of a South American Indian boy. Macmillan, 1926.

(An authentic account of the everyday life of Indians in British Guiana written by a member of the Beebe scientific expedition.)

Aitchison, Alison and Uttley, Marguerite: *Across Seven Seas to Seven*

Continents. Indians of the Upper Amazon, pp. 1-46. Bobbs-Merrill, 1937.
Fairgrieve, James, and Young, Ernest: *Homes Far Away*. People of New Guinea and the South Sea Islands, pp. 75-88, 133-144. D. Appleton, 1923.
Mirick, George, and Holmes, Burton: *Home Life Around the World*. Amazon and Congo Peoples, pp. 78-109. Houghton Mifflin, 1918.
Pratt-Chadwick, Mara, and Lamprey, L.: *The Alo Man, Stories from the Congo*. World Book, 1927.
(An account of everyday life in the Congo forest. The Alo man is a story teller who entertains the people with tales of animals. The reader is able to distinguish easily the factual sections of the book from the fiction sections.)
Steen, Elizabeth: *Red Jungle Boy*. Harcourt, Brace, 1937.

An Approach to the Unit

The journey method is admirably suited to the fourth grade level. Children of this age, having mastered the mechanics of the reading process, can be explorers setting out to see the world, to discover the great unknown. Much of the learning in the primary grades was through direct experience, which necessarily was limited to the immediate surroundings. The fourth grade child is eager for vicarious experiences in distant lands. Photographs provide reality for his exploration of new lands.

Not only is the journey method interesting, but it also gives opportunity for a purposeful introduction of maps and globes. They are essential tools to use in following the routes of exploration and in recording one's own findings.

The imaginary journey has been criticized and rightly so by various educators. A journey which is like the ordinary pleasure or sightseeing trip has little, if any, place in geography. However, where the journey takes on the characteristics of geographic field work it is justifiable. Serious and critical study of geographical data is a worth-while procedure. Let us explore along the Amazon River (or the Congo River), going slowly enough to observe and investigate how people live in these distant lands. What differences do we see between the landscape along the Amazon River and that of our Iowa home region? How do the Amazon people fit their ways of living to the kind of country in which they live.

Outline of Content

I. The route of exploration—the Amazon River or the Congo River

A. Entrance at the wide mouth

B. Travel upstream against the current

C. Advantages for steamboats

1. Deep water (The Amazon carries more water than any other river in the world.)
2. Freedom from falls and rapids (the Amazon). On the Congo River there are falls and rapids. Railroads have been built around these obstructions. Steamboats ply on the long stretches free from falls and rapids.
3. Abundance of wood for fuel

II. The landscape

A. Dense forests

1. Kinds of trees—palms, mahogany, balsa, and hundreds of others, but none that grow in Iowa
2. Size of trees
3. Character of leaves—large and always green
4. Relation to heavy rainfall and high temperatures

B. Widely spaced clearings

1. Along the main river
2. Along the tributaries
3. In the heart of the forest

III. Visit to a clearing

A. The inhabitants—Amazon Indians or Congo people

1. Appearance
   a. Benefit of dark skin under hot sun
   b. Comparison of Amazon Indians with former Iowa Indians
2. Their clothing
   a. Made of materials obtained in the forest
   b. Chosen for comfort in hot, wet weather

B. The homes

1. Built of reeds, grasses, leaves, and young saplings gathered in the forest
2. Raised on piles, if built near a river
3. Steep roofs in order to shed the heavy rain which falls almost every day
4. Fires kept burning all the time
   a. Fuel plentiful
   b. Matches lacking
   c. Smoke protection against mosquitoes

C. The garden—chief source of food
   1. Plants which thrive in hot, wet weather—corn, manioc, bananas, sweet potatoes, beans
   2. Planting and harvesting all year round because there is no winter and no dry season

IV. A fishing trip
   A. Kinds of boats
   B. Fishing equipment
   C. Type of fish
   D. Difficulty of keeping fish without ice or salt

V. A hunting trip
   A. Difficulty of travel in dense forest
   B. Scarcity of animals fit for food
   C. Hunting equipment
   D. Difficulty of keeping meat

Suggested Pupil Activities

A Record of My Explorations

(Actual explorers make a careful record of their discoveries. Lead the child to make a record of his discoveries.)

1. Drawings of plants I found in the forest:
   Banana plant (not a tree), palm trees
2. Drawings of the forest house, dugout canoe, weapons, and other things made by man
3. The conversation I had with a hunter
4. The conversation I had with a boy who had trained a monkey to climb a coconut palm and pick the ripe nuts
5. Menu of the meals for one day
6. List of the plants found growing in a garden
7. Drawings of a series of pictures showing preparation of manioc bread
8. Explanation of why I would rather paddle a canoe downstream two miles than upstream one mile

Making a Map Upon Which to Record My Journey

1. Trace a map of the river upon which the journey was made. Use transparent paper.

2. Mark *north, south, east* and *west* on the proper edges of the map.
3. Make an arrow pointing downstream to show the direction the river is flowing.
4. Mark *mouth* on the proper end of the river. Mark *source* on the other end.

Making a Map of the World

In order to see where the Amazon and Congo Rivers are with respect to Iowa, let us make a map of the world.

1. The world is round. When we look at the globe we can see only one half at a time. We call a half of the world a hemisphere. To represent the hemispheres let us make two circles 8 inches in diameter on stiff paper or cardboard. To draw circles without a compass, take a strip of paper about one inch wide and measure a line on it 4 inches long. At one end of the 4-inch line make a hole into which insert the lead of your pencil. At the other end of the 4-inch line stick a pin anchoring your homemade compass down into the cardboard. Hold the pin with your left hand and go around with your pencil in your right hand.
2. The large land masses of the world are called continents. Here are patterns of the continents. On another sheet of paper draw around each continent and cut it out. (The outlines given on these pages are intended for the use of the teacher. Trace them on the cardboard or tagboard. Cut them out, then circulate them among the children. Europe and Asia are left together for ease in handling.)
3. Can you find on which continent the Amazon River flows? Consult the hemisphere maps in your textbook, and also look at the globe.
4. Can you find on which continent Iowa is? The Mississippi River helps us find our home state.
5. Arrange North and South America on one of the hemispheres. To help you do this accurately, draw a straight line across the hemisphere right through the point where you stuck the pin when you drew the circle. This east-west line is the equator. Examine the globe to see where the equator crosses South America. Then lay

South and North America on your hemisphere. Either trace around them or paste them down.

6. On the other hemisphere place Africa, watching again where the equator crosses that continent.
7. Draw the Amazon River and the Congo River.
8. Draw a dotted line to show the route you would take going from Iowa to the mouth of the Amazon; to the mouth of the Congo.
9. Make an envelope out of wrapping paper large enough to hold your 8-inch hemispheres. On the outside print "A Record of My Explorations."
10. Put your envelope away for safe keeping. When you make a new journey get out your record and work on it again. By the end of the fourth grade you will have traveled from the equator to the north pole and to the south pole. You will be able to recognize all seven continents and all of the oceans. On your world, shade in each region you visit. Rivers and coastlines will help you locate the peoples you study. You do not need to trouble yourself with boundaries of countries.

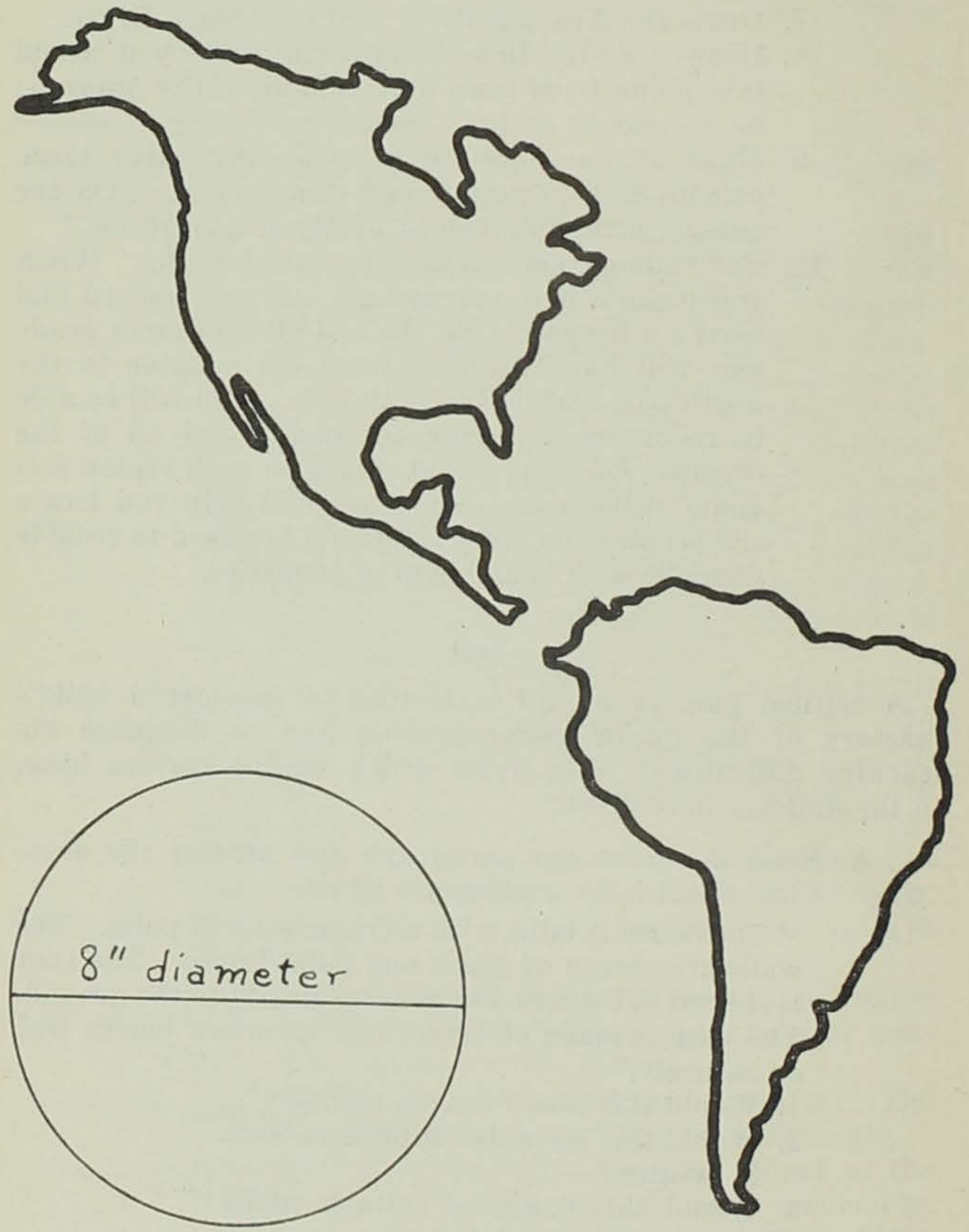
Test

A critical part of a unit is testing to measure a child's mastery of the major understanding and to diagnose his learning difficulties. Test items which sample various ideas in the unit are here given.

A. Read the following paragraph and answer the questions about it by writing *yes* or *no*.

"The house is built with a framework of poles. The walls are woven of grass and palm leaves. The roof is shaped like a cone and reaches nearly to the ground. The roof is made of layers and layers of leaves tied on securely."

1. Would this house have a chimney? _____
2. Would this house be suitable in Iowa in winter? _____
3. Would this house be suitable along the Amazon in July? _____
4. Would this house be suitable along the Amazon in December? _____
5. Would this house be suitable near the Congo River? _____



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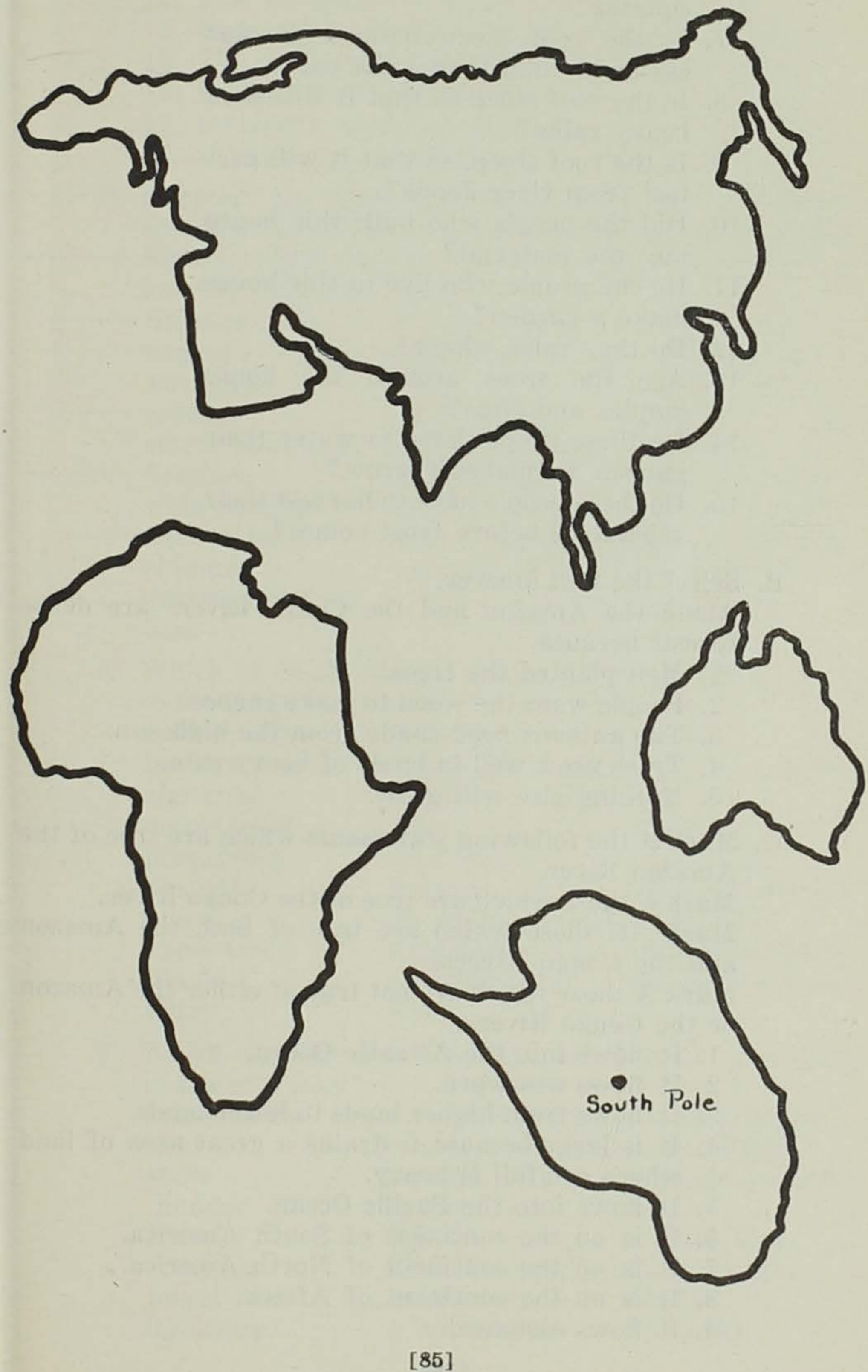
South Pole

6. Would this house be suitable on the equator? _____
7. Is the roof steep because it was easier to build than a flat roof? _____
8. Is the roof steep so that it will shed heavy rains? _____
9. Is the roof steep, so that it will protect from river floods? _____
10. Did the people who built this house buy the material? _____
11. Do the people who live in this house make a garden? _____
12. Do they raise wheat? _____
13. Are the trees around the house maples and elms? _____
14. Do these people have to water their garden to make it grow? _____
15. Do these people have to harvest their vegetables before frost comes? _____

B. Select the best answer.

Along the Amazon and the Congo Rivers are dense forests because

1. Men planted the trees.
2. People want the wood to make canoes.
3. The animals need shade from the high sun.
4. Trees grow well in lands of heavy rain.
5. Nothing else will grow.

C. Mark *A* the following statements which are true of the Amazon River.

Mark *C* those which are true of the Congo River.

Mark *AC* those which are true of both the Amazon and the Congo Rivers.

Mark *X* those which are not true of either the Amazon or the Congo Rivers.

1. It flows into the Atlantic Ocean.
2. It flows westward.
3. It flows from higher lands to lower lands.
4. It is large because it drains a great area of land where rainfall is heavy.
5. It flows into the Pacific Ocean.
6. It is on the continent of South America.
7. It is on the continent of North America.
8. It is on the continent of Africa.
9. It flows eastward.

10. It flows through a dense forest.
11. The water never freezes.
12. Boats go faster downstream than upstream.
13. The river goes dry part of each year.
14. It rises in the mountains.
15. Its mouth is at the seacoast.
16. It has many tributaries.

D. Suppose an American missionary and his family should go to live on the banks of the Amazon or Congo Rivers, which things in this list would they like to have in their new home?

furnace	electric icebox	high, concrete foundation
screens	kerosene cookstove	electric fans
awnings	coal cookstove	carpets
cellar	woolen blankets	tile floors
storm windows	red velvet curtains	steel furniture
fireplace	cane furniture	electric heater
wide porches	sun parlor	cotton blankets
shower bath		flat roof
chimney		radiators
overstuffed furniture		

E. Which of the following is the American family likely to see in the new land?

rubber trees	pine trees	peanuts
banana plants	mahogany trees	large cockroaches
elm trees	manioc	ants
maple trees	corn	forests
pineapples	mosquitoes	palm trees
parrots	wolves	trees in autumn colors
tulips	monkeys	
apple trees	alligators	poinsettias growing out-of-doors
jungle	strawberries	
vines	wheat	

F. Which of these will the American family experience in the new land?

heavy rains	a hot Christmas	a cold February
sleet	winter	a cool March
snow	summer	a warm September
thunder	spring	
frost	fall	a chilly May
droughts	a hot January	dust storms
forest fires	a cold July	floods
lightning	a hot August	blizzards

Unit III—People of Hot Deserts

From the following locations, select the one your textbook develops: along the lower Nile or some other oasis in the Sahara, along the lower Tigris and Euphrates Rivers; Arabia, Central Australia.

MAJOR UNDERSTANDING (chief objective of the Unit). Farther from the equator than the hot, wet lands lie great stretches of deserts in which the highest temperatures of the world have been recorded. No plants except those with special storage facilities and resistance to evaporation can live in the heat and drought. Plants are few and far between; bare ground dominates the landscape. Deserts are not all sandy, as is the common notion. There are rock deserts, there are clay deserts, there are salt deserts. A few nomads keep their herds of camels, sheep, and goats continuously on the move seeking pasturage. Most of the people of the desert secure a living by locating where there is a supply of water ample enough for irrigating crops. These oasis dwellers construct thick-walled, flat-roofed houses of sun-baked mud (adobe), while the poverty stricken nomads live in tents which can be transported on camel back. The most precious resource in the desert is fresh water. The amount of water limits the area which can be irrigated and the number of people that can be supported. Rivers that rise outside the desert give the greatest supply of water. Springs furnish irrigating water for many an oasis; in some spots ground water is near enough the surface that man has been able to reach it by digging wells. Trade between oasis dwellers and wandering herders is common.

REFERENCES. The references follow the last fourth grade unit.

Unit IV—Mediterranean Farmers (Optional)

LOCATION. Shores of the Mediterranean Sea.

MAJOR UNDERSTANDING. Traveling away from the equator one finally leaves the lands of perpetual summer. On the poleward border of the hot deserts lie lands with distinct seasons. The mild winter is the season of rain; the long, hot summer is the season of drought. Farmers are busy all year, but their work varies with the season. The winter is mild enough that some crops grow then. Wheat is planted

in the fall and harvested in early summer. The summer is a hard time for crops because there is little rain. Where water is available, farmers irrigate fruit and vegetables. But there are large areas where there is no irrigating water, and the farmer has two choices—he herds sheep and goats on the poorer lands; and on the better lands makes use of his good friend, the olive tree, whose small leaves do not waste any of the water its long roots gather.

Unit V—Mountain People

LOCATION. Mountains farther from the equator, the Swiss Alps, where distinct seasons limit the use of high pastures to the summer months and necessitate careful winter housing and feeding of livestock in the lower valleys. In contrast, in mountains near the equator, the Peruvian Andes, where the herders do not practice seasonal migration. They stay on the high pastures all year around for the weather is that of perpetual spring. Recall that it is perpetual summer in the equatorial lowlands.

MAJOR UNDERSTANDING. In mountains people live in a different way than on plains. The steep slopes cannot be cultivated, for the rain rushes down with such force it would wash the crops away. Then, too, mountains are of solid rock and most of the soil which forms is washed off the slopes and down into the valleys. There crops are grown. On the steepest slopes great stretches of bare rock are exposed. On less steep slopes forests grow. Strong roots push into the cracks of the rocks and hold the trees securely. If there is plenty of rain, trees can grow even though the soil be thin and poor. The higher we go in the mountains, the cooler the temperature becomes. On low mountains the forest extends to the top, but on high mountains the summits are too cold for plant growth. The upper edge of the forest is called the timber line. Above the timber line, grass and moss and low flowering plants grow because they can stand colder temperatures and more wind than can trees. To make use of this herbage, mountain people drive flocks and herds up through the forests, on to the high pastures. Higher, where the temperature is frosty, the rocks are bare of vegetation. Still higher up is the snow line, above which lie fields of perpetual snow. From large snowfields move great masses of ice called glaciers. Some of these glaciers move far down the mountain side before they reach tempera-

tures warm enough to melt them. Waters from the melting ice form streams which dash down the mountain sides, in some places making waterfalls. As they travel they cut great, deep valleys.

The valleys furnish the best location for roads and railroads. In the valleys, also, are farms, villages, and cities. To go from one valley to another it may be necessary to climb to a mountain pass between the mountain peaks. Many railroads go through tunnels drilled at great expense.

Unit VI—Delta Farmers

LOCATION. The Rhine delta in the Netherlands, the Yangtze delta, the Mississippi delta.

MAJOR UNDERSTANDING. Rivers gather great loads of mud as they carve valleys in the higher lands and wend their way to the sea. Some rivers send their mud far out to sea. Other rivers deposit great amounts at their mouths and form deltas. In order to use the deep, rich, delta soil, people build dikes to keep out the river water and the sea water. Behind the dikes, ditches and canals are dug to carry off the surplus rainwater. On land close to sea level, there is so little slope that water will not drain off. Therefore, it is necessary to use pumps to keep the drainage water moving. The canals are also used as highways and many people make their living operating freight boats on them. Farmers on deltas choose crops to fit the seasons. If the delta is near the equator, rice is a common crop. If farther from the equator, wheat, oats, hay, potatoes, and other vegetables are grown and much attention is paid to dairying.

Unit VII—Fishermen

LOCATION. Norwegian coast, coast of Newfoundland, coast of Southern Alaska.

MAJOR UNDERSTANDING. Along deeply indented coasts there are many harbors. In these protected waters fishermen can land their boats. On the shores of the harbors fishermen build their homes. On lowlands and gentle slopes they will raise crops and herd livestock. Many people make their living by engaging in both kinds of work—fishing and farming.

Unit VIII—Arctic People and Polar Explorers

LOCATION. Eskimos in northern Alaska, northern Canada, coast of Greenland; Lapps in Northern Norway, Sweden, and Finland. Explorations to the north pole and to the south pole.

MAJOR UNDERSTANDINGS. Within the Arctic Circle summer is too short and cool to permit the growing of crops. Therefore, man is forced to depend upon animals for the necessities of life. Moss, grass, and lichens grow in the short, cool summer and make a mat of vegetation, called the tundra, which furnishes feed for reindeer, caribou, and musk ox. Animals feed well on the tundra in summer, but in winter the frozen vegetation offers scanty living. In the sea many animals live and man catches them in order to obtain additional food, clothing, and fuel.

Houses are built of driftwood, sod, snow, and ice. If possible, logs are floated downstream from the interior forests and log cabins are built. If snow and ice houses are used, they melt away in the summer and the people live in skin tents. Fur clothing is comfortable most of the year. In the summer fewer layers are needed. Winter is the time for trapping for then the fur is at its best. This type of work can be carried on, even though the sun does not appear for a month or two in midwinter. In midsummer there is a month or two when the sun does not set, but these long days do not grow hot, for the sun is never high in the sky.

There are no people living within hundreds of miles of the north pole or the south pole. Around the poles is perpetual winter. Nothing can grow. Only a few daring explorers have gone into the polar regions. Since there is no land at the North Pole, the expeditions have had serious problems travelling over frozen seas. The South Pole is at the center of the continent of Antarctica. The explorers in search of the South Pole have had the problems of travelling over ice-covered plains, plateaus, and mountains.

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Instructor Series of Illustrated Units. *No. 4. Eskimos.* Owen Publishing Co., Danville, New York, $.25.

Pictures

Thralls, Zoe A.: *Geography Units.* Each unit consists of 25 stereographs and a Teacher's Manual. Keytone View Company, Meadville, Pennsylvania.
1. The Congo Region.
2. The Land of the Nile.
3. Mediterranean Lands.
4. Switzerland, a Land of Mountains.
5. Down the Rhine to the Netherlands.
6. Norway—a Mountainous Country by the Sea.
7. Arctic Lands and Farthest North.

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Congo—October 1922, November, 1937.
Amazon—April 1926.
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Switzerland—March 1910, March 1922, August 1936.
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Test

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SECTION V—GRADE FIVE

THE UNITED STATES AND ITS NORTHERN NEIGHBOR

Program for the Year and Suggested Timing

Unit	I	Iowa, the Heart of the American Corn and Livestock Belt	6 weeks
Unit	II	The Great Lakes: Forests, Mines, Dairies, and Factories	2 weeks
Unit	III	The South: Cotton, Corn, and Tobacco Farms; Forests, Winter Resorts, Factories	4 weeks
Unit	IV	The Great Plains: Wheat Farms and Livestock Ranches	2 weeks
Unit	V	Mines, Forests, Vacation Lands of the Mountainous West	2 weeks
Unit	VI	Forests, Farms, and Fishing of the Pacific Northwest	3 weeks
Unit	VII	Irrigated Farms and Winter Resorts of the Pacific Southwest	3 weeks
Unit	VIII	The Manufacturing Northeast	5 weeks
Unit	IX	Distant Lands of the United States	2 weeks
Unit	X	Canada	3 weeks

Human-Use Regions

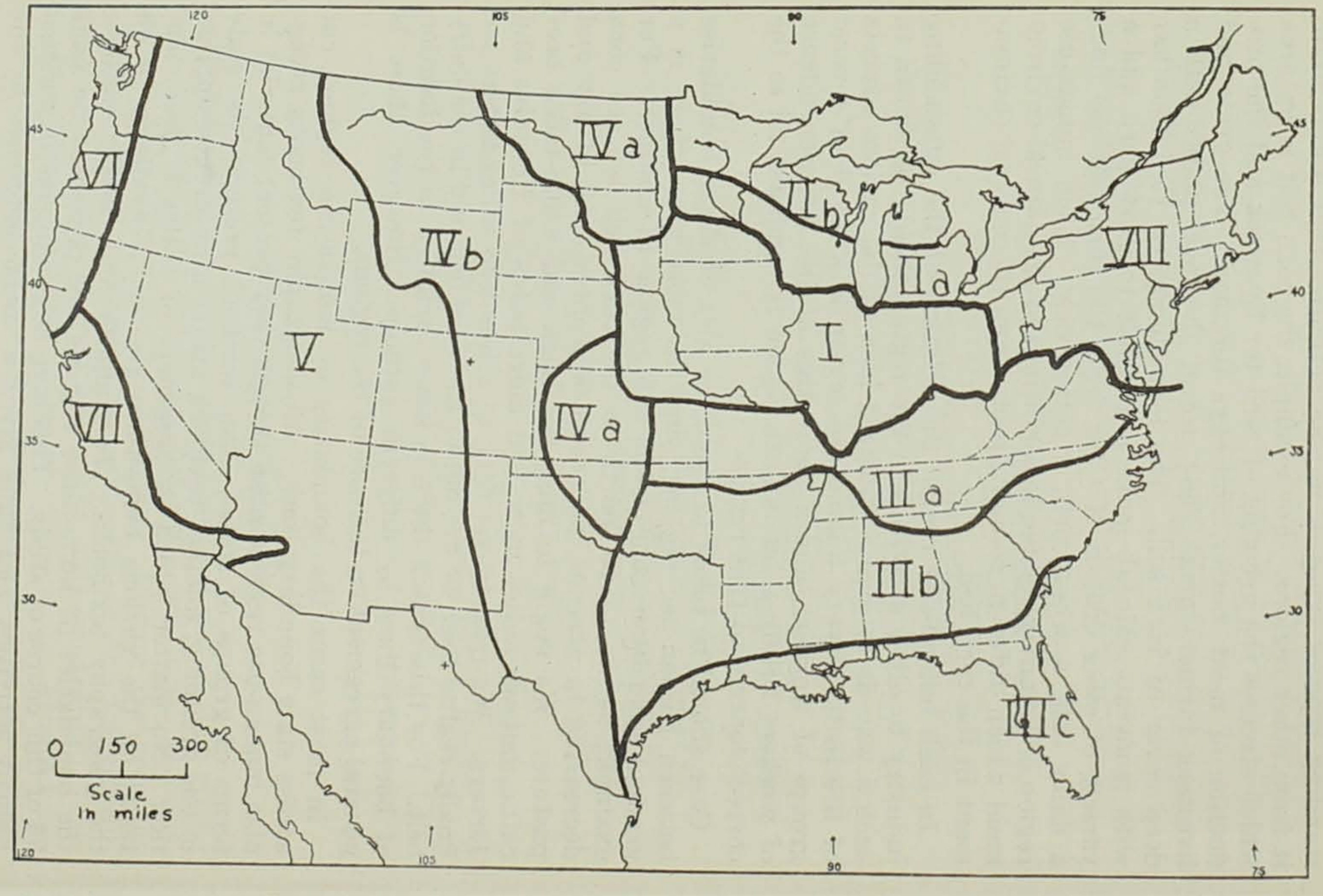
The United States is such a large country and of such strikingly contrasting regions that the child will need to build an understanding of it piece by piece. During the year he will learn the name and location of each of the forty-eight states, but he need not analyze each state separately. The states which are similar in major respects are grouped together and studied as a unit. These units may be designated as human-use regions.

A human-use region is an area characterized by the outstanding type or types of human activities that differentiate it from other regions. For example, the corn belt is an area which stresses the growing of feed for livestock and the production of meat, butter, and eggs for man. The grain and livestock farmers make good use of the level plains with a deep cover of rich soil. The long summers (5-6 months) with moderate rainfall make it possible to grow corn and a variety of other crops. Not far from the corn belt one finds a dairy belt, a wheat belt, a cotton belt. Each human-use region is definitely related to conditions of the natural environment which differ in some respects from the natural environment in the corn belt.

In each human-use region the relation of the outstanding industry to other activities in the region should be shown in such a way as to give a balanced idea of the various aspects of life in it. Every human-use region is a blend of several groups of workers, and a knowledge of the interdependence of workers within a human-use region is fundamental to the correct concept of that region.

Care should be taken to avoid the idea of sharp boundaries between human-use regions, since in most cases there is a gradual transition zone from one region to another. For example, as we travel north in the corn belt we see corn decreasing in acreage, and more and more land in hay and pasture. We begin to miss the hogs and white-faced beef cattle, but we notice more and more herds of Holsteins and Jerseys. We may travel fifty to a hundred miles before we finally realize that we are out of the corn belt and in the dairy belt. For this reason there is some variation in the location of boundary lines by different authors. However, there is general agreement on the core of the regions.

In most cases the boundaries of human-use regions cut across state boundary lines. All geography textbooks recognize human-use regions even though they present material in terms of groups of states. One textbook presents the state in one grouping, another textbook makes a different combination. No matter which arrangement of states is used, material on the various human-use regions is available in all the geography textbooks. To simplify and clarify matters, the boundaries of human-use regions are presented on page 96 of this course of study. This map helps emphasize regional human activities and thus gives a social approach to the geography of the United States.


120
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IIIc
0 150 300
Scale
In miles

The interdependence of the human-use regions of the United States should be emphasized. Our country with its great variety of human-use regions, has many advantages. The consequent exchange of goods can be made without the problems of crossing political boundaries where inconveniences of change in money, language, and laws are likely to be encountered.

The history textbooks are not organized on the basis of human-use regions. However, there is available in the various fifth grade histories of the United States ample material on the exploration and settlement of the different sections of our country. References given in this course of study are to materials *other than basic textbooks.*

The Master Map

Unit I. The Corn and Livestock Belt

Unit II. The Great Lakes Region
- a. The Lower Lakes Region
- b. The Upper Lakes Region

Unit III. The South
- a. The Middle South
- b. The Cotton Belt
- c. The Winterless Coastal Belt

Unit IV. The Great Plains
- a. The Wheat Belts
- b. The Ranching Region

Unit V. The Mountainous West

Unit VI. The Pacific Northwest

Unit VII. The Pacific Southwest

Unit VIII. The Manufacturing Northeast

Map Tools

To build understandings of human-use regions and of countries, the fifth grade needs a new set of map tools, far more complicated than the simple maps used in the fourth grade. The children are now introduced to color-band political-physical maps, to rainfall maps, to population density maps, and to dot maps of crops and livestock. Thus, it becomes imperative that fifth grade teachers take great care in presenting

maps and in providing sufficient drill to fix correct habits. Some courses of study have overcrowded the fifth grade with all of North America and all of South America and consequently have neglected to make adequate provision for the child's acquisition of good habits in the use of map tools. This failure has handicapped the child through later years because upper grade teachers expect and have a right to expect that he was firmly grounded in map reading in his formative years.

Latitude is a tool which is within the comprehension of the fifth graders, provided longitude is not tied up with it. Unfortunately in some books latitude and longitude are introduced on the same page and endless confusion is the result. The fourth grade reckoned distances from the equator only in comparative terms (A is nearer the equator than B, C is halfway between the equator and the south pole.) The fifth grade needs a tool for reading exact distance from the equator, since that is fundamental to climatic understandings. Longitude should be postponed until latitude has been mastered. Longitude might well be introduced later in connection with time belts and radio programs. The burden of map learning is heavy enough in grade five without the addition of cross-sections and weather maps, both of which are far too difficult at this stage of learning.

For further helps on maps, read the general discussion which introduces the social studies program for the middle grades.

Graphs and Statistics

Graphs and statistics are first introduced in the fifth grade. Statistics are fundamental to geographical study and they should be consulted frequently. When statistics are put into graphic form, the figures become concrete, more impressive and vivid, more readily comprehensible. The first graphs used or made by the children are pictorial in character; for instance, twenty-six wagons in a row may stand for the amount of corn raised in the United States in 1939. Each wagon represents one hundred million bushels of corn. The wagons must be exactly the same size. On five of the wagons print *Iowa*. This will show the proportion of the U. S. crop raised in Iowa. The important point to be noted in the pictorial graph is that the unit used (a wagon, an ear of corn, a bushel basket, a can of milk, a man) must be one size and stand for a certain stated amount.

The next advance in graphing is to diagrammatic symbols, such as the square or the dot as a unit. Squared paper lends itself to easy and accurate graph construction. Some children may call into use stick-printing methods which they have learned in their art work.

Further along in the fifth grade the bar graph can be introduced. It offers the advantage of using fractions of units. At first the teacher states how much one inch stands for. After considerable experience with bar graphs, the children should be trained in estimating a suitable unit in relation to the space available. There are various other kinds of graphs, but they are more difficult and await later grades.

There are many tables of statistics given in textbooks. Statistics on area and on population are not subject to frequent change. But statistics on production should be brought up-to-date. Furthermore, children should be introduced to authoritative statistical sources and be trained in their use so that independence from textbooks can be attained.

A statistical source which fifth grade children can handle is *Agricultural Statistics* published annually by the U. S. Department of Agriculture and sold by the Superintendent of Documents, U. S. Printing Office, Washington, D. C., for seventy-five cents (paper bound). Before 1936 these statistics were published in the U. S. Department of Agriculture Yearbook which was available for the asking. *Agricultural Statistics* gives crop and livestock data for each state of the Union.

For statistics on mining, manufacturing, fishing, size of cities, children may consult *The World Almanac* published by the *New York World-Telegram* for seventy-five cents (paper bound) and available in book stores or drug stores everywhere.

Objectives

I. Understandings

A. The geographic individuality of each human-use region

(A statement of each understanding is given at the beginning of each unit.) The United States understandings which follow are those of the country as a whole. They are a culmination of the study of the units on human-use regions and should evolve by the end of grade five.

B. The United States is endowed with a great wealth of natural resources.

1. Great areas of fertile humid plains; the basis of abundant production of staple foods and fibers
2. Small areas of fertile plains in frost-free or nearly frost-free climates; the basis of production of specialty crops
3. Great areas of forests, some of which are growing on land too rough, too rocky, too sandy ever to be cleared for agricultural purposes; the basis of our paper, rayon, and wood-working industries
4. Great stretches of semi-arid grasslands; the home of the grazing industry
5. Large deposits of major minerals (coal, iron, petroleum, copper, lead, and zinc) fundamental to the manufacturing industry
6. Deposits of a great variety of minor minerals; raw materials for the manufacturing industry
7. Long mileage of coastline with many good harbors on three sides of our country and a connected group of large lakes on the fourth side; an advantage for carrying on trade within our country as well as with foreign lands
8. Long mileage of navigable rivers; an advantage for the transportation of bulky, non-perishable freight
9. Great amounts of water power; the basis for a hydro-electric industry
10. Wide distribution of nature's gifts, with the result that each section has some natural resource on which to specialize; the basis of trade among the various sections of the United States
11. Richer endowments of natural resources in some regions, poorer endowments in other regions; the basis for dense population in some sections, sparse population in others

C. This great wealth of natural resources lay practically untouched during centuries when Indians were the only inhabitants of the land which later became the United States.

D. The coming of European settlers, with contributions from most of the countries of the home continent, marked the beginning of discovery and vigorous utili-

zation of the vast storehouse of riches. The heritage of these pioneers and of later immigrants enabled them to use these natural resources in ways that the primitive people had never dreamed of.

E. The rapidity of the United States' climb to a position of world importance is based upon a combination of two factors of equal significance—(1) the wealth of natural resources, and (2) the effective workmanship of the people who utilized these resources.

F. The United States is a land of plenty and is not overcrowded with population; therefore Americans have an opportunity for a better living than people in overcrowded countries and in countries poorly endowed with the resources of nature.

G. The United States has lived in peace and in harmony with its northern neighbor for many years. The people are much alike on either side of the boundary line. The human-use regions of northern United States are practically the same as those which lie along the southern border of Canada. Our southern location and certain mineral deposits give us products which Canada can well use. Canada's northern location and certain minerals which we do not possess provide commodities to balance trade between the two countries. The result is that Canada does more business with the United States than with any other country and we, in turn, do more business with Canada than with any other country.

II. Map reading abilities

A. To read from a physical-political map showing elevation by color-bands:

1. The range of elevation for which each color stands; for example, the green extends from sea level to 1,000 feet
2. The approximate steepness of slope by measuring the width of color-bands; for example, the rise from 1,000 feet to 10,000 feet on the western slopes of the Sierra Nevadas in about 50 miles as compared to an equal rise from central Iowa to central Colorado in about 650 miles
3. To distinguish the different land forms—plains, plateaus, hill country, and mountains

4. Political boundaries—country and state
5. Capitals of countries and of states as distinguished from other cities
6. Cities of various sizes

B. To use scale of miles in measuring air-line distances

C. To read from the network of a map:
1. Distance in degrees north and south of the equator
2. Directions by means of north-south lines, and east-west lines

D. To read maps showing rainfall, length of frost-free season, forests, minerals

E. To read dot maps of crops and livestock

F. To read population density maps

G. To read highway, railroad and airways maps

H. To compare a specific section on one type of map with the same section on other types of maps; for example, an area showing heavy concentration of dots on a crop map with the same area on a surface map, a rainfall map

I. To identify on an uncaptioned outline map:
1. each state of the Union
2. each of the largest twenty-five cities (Note the omission of the state capitals, many of which are not of importance to out-of-state people.)
3. the more important rivers
4. each of the Great Lakes
5. the four major mountain ranges (Appalachians, Rockies, Cascades, Sierra Nevadas)
6. the major arms of the sea

III. Picture reading abilities

A. To identify the more important crops

B. To identify farm operations and relate them to time of year

C. To identify certain types of factories; for example, blast furnaces, flour mills, meat-packing plants, saw-mills, hydroelectric plants

D. To identify transportation items: canal locks, docks, grain elevators, railroad yards, tunnels, bridges, air-ports

E. To match a given set of pictures to a given set of places

F. To arrange a given set of pictures of the United States in order from east to west, or north to south, or according to human-use regions

IV. Ability to use graphs and statistics

A. To use statistics given in round numbers to make multiple-unit graphs; using such symbols as 1 dot = 100,000 people, 1 square = 5,000,000 bushels, 1 circle = $1,000,000. Each unit on any one graph is exactly the same size.

B. To use statistics given in round numbers in making a bar graph; for example, a bar a half inch wide and 1 inch long represents 5,000 bushels, 2 inches long 10,000 bushels

C. Given a list of cities and the population of each, to find the five largest cities, the ten largest cities, or to arrange the entire list of cities in order of size

D. Given a list of states and the amount or value of the production of a certain crop or mineral, to arrange the states in order of their production

E. To read from graphs the distinctive facts shown

F. To raise geographical problems through the use of graphs and statistics

G. To find statistics by using the index of such an authoritative source as U. S. Department of Agriculture: *Agricultural Statistics*

V. Ability to use correctly certain technical terms and semi-technical terms

harbor
seaport
riverport
airport
altitude
latitude
parallels
arid
semi-arid
humid
subtropical
subpolar
levee
bedrock
top soil
subsoil
blast furnace
precipitation
map scale
isthmus
cape
bay
fishing banks
navigation
drowned river-mouth
rapids
hydroelectric
prairie
coniferous forest
erosion
population density
dry farming
livestock ranching
market gardening

Order of Units

The order in which the units are studied in this course is based largely upon the order of difficulty of the human-use regions. Iowa children will find agricultural regions less difficult than manufacturing regions. For them the corn belt is a good starting point, and emphasis is placed upon Iowa as a part of the corn belt. From the corn belt, we go northeast into the Great Lakes region, then south, then west. Finally we study the northeast which is the most complicated section of the United States. The northeast manufacturing belt most strikingly illustrates multi-regional relationships, because it depends upon the rest of the United States for most of the raw materials for its factories and for most of the food for its people. It should be the culminating unit because it calls into use a knowledge of all the rest of the United States.

Unit I—Iowa, the Heart of the American Corn and Livestock Belt (Complete Unit)

Chief Objective

To help children master the following understanding:

Iowa represents the great American corn belt, one of the major food-producing regions of the United States. Iowa is able to produce great quantities of feed for livestock and food for man because of nature's bounty and man's intelligence and care in use of that bounty. Iowa's gently rolling plains, covered with deep, rich soils, have enabled farmers to plow most of its area. In flattish sections the farmers meet drainage problems, while in rougher areas they face the problems of controlling erosion. Iowa's hot summers with abundant rains make possible the production of large crops in less than six months. The cold winters necessitate adequate housing for people and livestock and storage of food and feed. Iowa specializes in corn and other feed crops and finds profit in feeding great numbers of livestock. To prepare the livestock products for home and distant market, Iowa has developed its most important types of manufacturing. To meet some of the needs of the farmers, Iowa has farm machinery factories although she must depend upon other states for steel. Iowa's major cities are all on rivers. In the early days the larger rivers were Iowa's easiest highways. When the railroads pushed westward, Iowa's mid-continent location and its gently

rolling plains invited the location of many lines across the state.

Materials

I. Textbook

All the fifth grade geography textbooks contain materials on the corn belt. Many of the textbooks have Iowa supplements. Since this unit seeks to develop Iowa as representative of the corn belt, the material on the corn belt should be used as well as the material on Iowa.

II. Collateral reading

A. Geography

1. Children's references

Aitchison, Allison, and Uttley, Marguerite: *North America by Plane and Train.* Bobbs-Merrill, 1936, pp. 5-33.

Eisen, E.: *Our Country from the Air.* Wheeler Pub. Co., 1937, pp. 175-179, 210-212.

Fairgrieve, James, and Young, Ernest: *The United States.* D. Appleton and Company, 1925, pp. 17-49.

Lefferts, Walter: *Our Own United States.* J. B. Lippincott Company, 1925, pp. 180-209.

"Iowa, the Abiding Place of Plenty," *National Geographic Magazine,* 1939, (vol. 76, pp. 143-182)

2. Teacher's references

Holmes, C. L., and Crickman: *Types of Farming in Iowa.* Bulletin No. 374, Agric. Exp. Station, Iowa State College, Ames, Iowa, 1938.

U. S. Dept. of Agriculture: *Conserving Corn Belt Soil.* Farmers Bulletin No. 1795, 1937.

Iowa State Dept. of Agriculture: *Iowa Yearbook of Agriculture.* Annual.

Federal Writers' Project: *Iowa, A Guide to the Hawkeye State.* The Viking Press, 1938.

Course of Study for High Schools, Agriculture for Grades 9 and 10. State of Iowa, Department of Public Instruction, 1940.

B. History

Briggs, J. E.: *Iowa Old and New.* University Pub. Co., Kansas City, 1939.

Mahan, B., and Gallaher, R.: *Stories of Iowa for Boys and Girls.* Macmillan, 1929.

Moeller, H. L., and Moeller, H. C.: *Our Iowa.* Newson, 1938.

Fletcher, M. E.: *Old Settler Stories.* Macmillan, 1932.

Allen, Gina: *Prairie Children.* Row Peterson, 1941, 36 pp., 25c.

Aitchison, Alison, and Uttley, Marguerite: *Across Seven Seas to Seven Continents.* Bobbs-Merrill, 1937, pp. 240-283.

Hanna, P. R.: Quillen, I. J., and Potter, G. L.: *Ten Communities.* Scott Foresman, 1940, pp. 240-293.

Approach to the Unit

The part of the United States in which Iowa is located is called the Middle West. The term Middle West is usually applied to the northern part of the United States between the Appalachians and the Rockies. Not all of that great expanse is alike, so we shall divide it and study it piece by piece. The section of the Middle West to which Iowa belongs is the corn and livestock belt. Let us first locate the corn and livestock belt.

Here are directions for marking a map of the corn belt upon an outline map of the United States. Color yellow the western half of Ohio, all of Indiana and Illinois, the northern half of Missouri, all of Iowa, the northeastern fourth of Kansas, the eastern third of Nebraska, the southeastern fourth of South Dakota, the southern third of Minnesota. What reason do you find on the map for calling Iowa, the Heart of the Corn Belt? Why is the corn belt also called the livestock belt? Examine dot maps of beef cattle and of hogs in your textbook. Compare the area where the dots are thickest with the area on the dot map of corn where the dots are thickest.

Now let us see if we can find another reason for calling Iowa the Heart of the Corn and Livestock Belt. Let us see how much corn Iowa raises as compared with other states. Let us see how much livestock Iowa has as compared with other states. Use these tables to find out.

Leading States in Corn Production
(recent 10-year average)

Iowa	393 million bu.
Illinois	308
Nebraska	159
Indiana	151
Minnesota	136
Ohio	132
Missouri	113
Kansas	81

Leading Horse States

Iowa	750,000 head
Minnesota	640,000
Illinois	630,000
Missouri	530,000

Leading Chicken States

Iowa	44,000,000 chickens
Illinois	35,000,000
Missouri	32,000,000
Kansas	31,000,000
Indiana	31,000,000
Texas	30,000,000

Leading Hog States
(in a recent year)

Iowa	9,600,000 head
Illinois	5,500,000
Indiana	4,200,000
Missouri	3,600,000
Minnesota	3,400,000
Ohio	3,300,000
Nebraska	2,500,000
Texas	2,300,000

Leading Cattle States
(in a recent year)

Texas	6,700,000 head
Iowa	4,700,000
Wisconsin	3,400,000
Minnesota	3,300,000
Nebraska	3,100,000
Kansas	3,000,000
Illinois	2,900,000
Missouri	2,800,000
New York	2,100,000

Not only is Iowa the largest crop and livestock producer in the corn and livestock belt, but our state holds a high rank among all the states of the Union in agriculture. Investigate the following table to see where Iowa stands among the forty-eight states.

Top Six States in Value of Crops, Livestock, and Livestock Products

(Total cash income from farm marketings in millions of dollars)

U. S. Dept. of Agric.: *Agricultural Statistics,* 1940, pp. 547-550 and 1943, pp. 410-411.

	1937	1938	1939	1940	1941	1942
California	688	534	556	649	855	1,133
Iowa	532	561	585	669	869	1,237
Texas	599	457	456	510	709	988
Illinois	521	483	488	543	704	955
Minnesota	362	326	330	380	489	692
Ohio	359	317	305	324	426	570

In the six years how many times did Iowa rank first? second? third? What are the only two states which outranked Iowa in any year? If we should examine the data for the past ten years we would find that these same two states are the only ones that ever surpassed us. It is on the sale of crops that two states go ahead of us, but not on the sale of livestock and livestock products. No state has received as much cash from livestock and livestock products as has Iowa. Some child might find it worth while to examine the complete table from which the one above was taken and report to the class on what he finds on Iowa sales of livestock and livestock products as compared to those of other states. It might be interesting

to look at the separate crop sales figures also. Problem: How can Iowa produce such large crops of corn, and how can Iowa feed such great numbers of livestock?

Suggested lines of investigation:

Is it because Iowa is a large state?
Is it because Iowa has much land fit for farming?
Is it because Iowa's land is of high quality?
Is it because Iowa's climate is specially good for farming?
Is it because Iowa has many farmers?
Is it because Iowa farmers specialize in corn and livestock?
Is the rest of the corn belt like Iowa?

Outline of Content and Suggested Pupil Activities

I. Area of Iowa and of Iowa's farm land
   A. Total area 35,000,000 acres or 56,000 square miles
      Comparison with other states by means of maps and tables. How many states are larger than Iowa?
   B. Farm land 33,500,000 acres
      There is no other state in the Union that farms as large a fraction of its total area. However there are four states (Texas 109 million acres, Kansas 44, Nebraska 42, North Dakota 34) which have more land in farms than Iowa.

II. Iowa farmers

A. Total population of Iowa	2,538,268	(1940)
Number living on farms	930,810	
Number living not on farms—		
In rural towns of less than 2,500	523,227	
In urban centers of more than 2,500	1,084,231	

   B. Rank among other states
      Twelve states have more people living on farms than does Iowa.
   C. Use of horse power and machine power
      1. Table on number of horses is given in earlier part of the unit.
      2. Number of tractors on Iowa farms: 1930, 66,258; 1940, 124,487.

III. Quality of Iowa land
   A. Comparison of Iowa land with that of the other rich land states and with that of the U. S. See the following table which gives data from a report of the national Resource Board.

The Top Seven States in Quality of Land
(In millions of acres)

	Excellent land	Good land	Fair land	Poor land	Land not plowable
U. S. A.	101	211	346	363	882
Iowa	26	7	1	1	⅓
Illinois	15	7	6	7	10
Minnesota	12	12	7	7	13
Missouri	9	14	12	4	5
Nebraska	8	10	10	11	10
Indiana	5	7	8	2	1
Ohio	4	6	10	4	1

B. Surface
   1. Plain between 500 and 2,000 feet above sea level Investigate color-band map of the United States. Locate the 1,000-foot contour line, the line which separates the green band from the yellow band. Where is the lowest part of the state; where is the highest part of the state?
   2. Variations within the state
      a. Flattish to gently rolling in the north central part of the state. Note the attention farmers have had to pay to drainage. How is tile laid? If there is no nearby creek to empty the tile water into, county drainage ditches are dredged.
      b. Strongly rolling in southern part of the state. Note the attention farmers have had to pay to soil erosion. Can you find evidence in your neighborhood of how farmers are trying to stop gullying? Do you see any contour farming? Are any farmers terracing and strip cropping? Is there more of the rough land planted in grass than in corn?
      c. Hilly in the northeastern part of the state. Steep slopes in trees and grass. Valley flats and table-topped ridges in crops. Much attention to dairying.
   3. Work of the ice sheets 50,000 to 100,000 years ago.
   4. Work of running water since the Ice Age.

C. Soils
   1. Deep rich glacial soils over most of the state
   2. Layers of wind-blown soils on top of glacial soils, especially in west and south

3. Black color, the result of centuries of decayed prairie vegetation
4. Depth of top soil and subsoil in your neighborhood. Inquire of the farmers how deep their wells are, do they penetrate bed rock, if so at what depth?

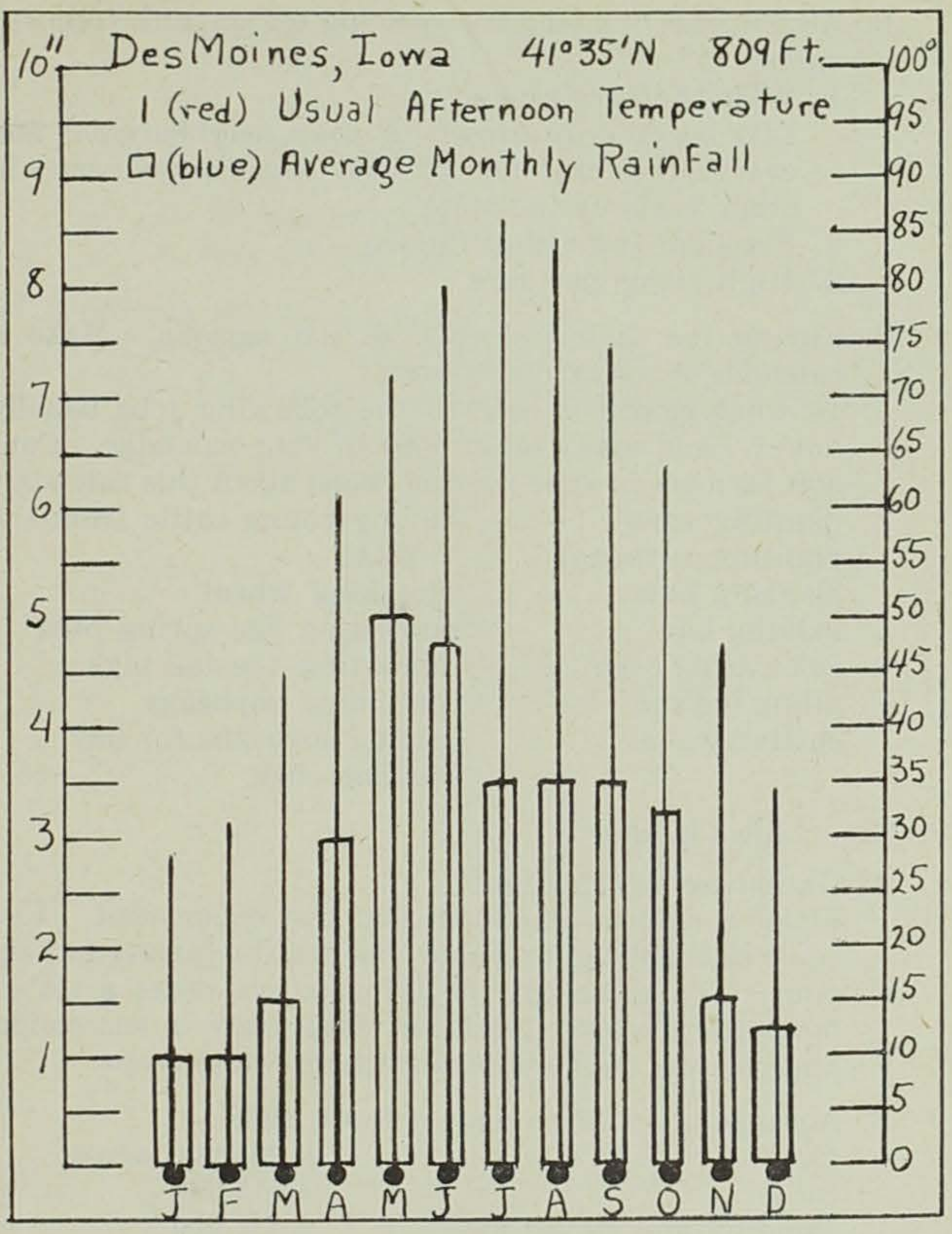
IV. Quality of Iowa climate

A. Investigation of weather bureau data

Des Moines, Iowa Latitude 41° 34′ N Average Afternoon Temperatures		(36-year record) Altitude 809 feet Average Monthly Rainfall In Inches
Jan.	29° F.	1
Feb.	32	1
March	45	1½
April	61	3
May	72	5
June	80	4¾
July	86	3½
Aug.	84	3½
Sept.	75	3½
Oct.	64	2¾
Nov.	47	1½
Dec.	34	1¼
		Year 32¼

Note: If you want climatic data for your part of the state, write to the U. S. Weather Bureau, Des Moines, Iowa, and ask for data of the station nearest to your school. The data we call "average afternoon temperatures" will be listed under the heading "average or mean maximum temperatures." The average minimum temperatures would be usual night-time temperatures.

To make a graph of this data, use a sheet of construction paper marked in half-inch squares. The drawing which follows this paragraph will make these directions clear. Make twelve thermometers, one for each month, by drawing a bulb at the bottom and coloring it red. Then draw a red line to show how far the mercury usually goes up in the thermometer. Count each half inch as five degrees. Behind each thermometer we can show how much water stands in the rain gauge. Fill each box with blue to the right height. On the left hand margin mark the inches on the bars of the paper.



Now let us see what our graph shows.

What months are hot? Warm? Cool? Cold? There should be four months hot, three warm, two cool, three cold.

The most rain comes in what month?

Five months have no frost. How much of the year's rainfall comes in these five months when plants can grow best?

B. Advantages of a long hot growing season with frequent rains.
   1. Wide choice of crops
      List every crop grown in your neighborhood and every other crop you or your friends have seen in other parts of the state
   2. Freedom from crop failure
   3. High yields per acre

C. Fitting the farmer's work to the seasons. Make a calendar of the farmer's work.
   In what month is each of the following jobs usually done? Add many other jobs to your calendar. Consult farmers in your neighborhood about this calendar.

planting corn	buying young cattle from the West
planting soybeans	threshing wheat
planting oats	marketing the spring pigs
making hay	marketing the fall pigs
cultivating corn	combining soybeans
filling the silo	cutting soybeans for hay
cutting wheat	husking corn

V. Use of Iowa land

A. Gathering information
   Make a map of the farm you live on or visit. Use squared construction paper and ask the farmer to help you. If you can get the information, make a set of maps for the same farm for three years in succession and you will see how Iowa farmers rotate crops.

B. Acreage in leading crops of Iowa, 1938

Corn	10,306,000 acres
Oats	5,913,000
Timothy and clover hay	2,937,000
Soybeans	950,000
Alfalfa	900,000
Winter wheat	559,000
Barley	447,000
Rye	101,000

C. Types of farming
   1. Production of feed crops versus food crops
      Make a list of crops fed to livestock.
      Make a list of crops used as human food.
      Compare the amounts of corn eaten by livestock

and by man. Perhaps you will make a graph showing this point. You can find the data in your textbook or in an Iowa supplement.

2. Livestock feeding for
   a. Meat production
   b. Milk production
   c. Egg production

VI. Products sold by the Iowa farmer

A. The average Iowa farmer's dollar comes from the sales listed below. Figure out the sales of each item if a farmer's total sales were $1,000, $5,000.

1. From the sale of hogs 33½c
   " " " " cattle and calves 26
   " " " " milk 12½
   " " " " corn 10
   " " " " eggs 5
   " " " " chickens and turkeys 4
   " " " " sheep and lambs 2
   " " " " oats 1½
   " " " " wheat 1
   " " " " soybeans ½
   " " " " truck crops including potatoes ½
   " " " " hay ½
   " " " " barley ¼
   " " " " all other crops 1½
   " " " " all other livestock and livestock products 1¼

   $1.00

Suggestions for making a graph: Print down the side of a piece of paper the names of the things the Iowa farmers sell. Beside each sale, draw the proper number of pennies in a row and color them brown. If you are working on a large piece of wrapping paper, you could draw actual size pennies. If you are using a small piece of paper, draw small circles. For halves and quarters, color brown the fraction of a circle.

B. Markets for Iowa farm products

1. Meat packing plants
   a. In Iowa

   Locate these cities on an outline map of Iowa

Iowa Meat Packing Cities

In order of the number of persons employed
May, 1941

Waterloo	4,450
Ottumwa	2,855
Sioux City	2,656
Mason City	2,109
Cedar Rapids	1,489
Des Moines	1,096
Fort Dodge	684
Dubuque	283
Davenport	261
Estherville	95
Perry	90

To which of these cities do farmers in your community sell livestock? Mark on the map your home county and town. Show the highway over which local livestock goes to the meat packing plant.

Rank of Iowa in meat packing

Value of products of meat packing industry, 1935

(1) Illinois $494,000,000
(2) Iowa $206,000,000

b. Outside Iowa
  (1) Rank of meat packing cities
    (a) Chicago
    (b) Omaha
    (c) Kansas City, Kansas and Missouri
    (d) St. Paul
    (e) East St. Louis, Illinois
    (f) St. Joseph, Missouri
    (g) Cincinnati
    (h) Indianapolis
    (i) Sioux City, Iowa
    (j) Jersey City
  (2) Locate the meat packing cities on the map of the United States upon which you colored the corn belt. How many of the leading ten cities are in the corn belt?
  (3) Gather first-hand information concerning shipments from your neighborhood.
  (4) Reasons for the location of meat packing plants near to the livestock producing areas.

Compare the weight of the animal with the weight of the meat.
Consider the loss of animal weight during shipment.
Compare the large amount of space live animals occupy in a livestock car or truck with the solid pack of meat in a refrigerator car.
Consider the shipment of meat in refrigerator cars. Before the days of refrigerator cars, would there have been many meat packing plants in Iowa?

(5) Iowa and the nation's meat

(a) Amount of Iowa pork, ham, and bacon consumed outside the state

The average consumption of pork, bacon, and ham by an American per year is 64 pounds (1939). What would be the total amount consumed in Iowa on this basis?
To work out this problem you need the population of Iowa.
The pork, bacon, and ham production of Iowa is about 1,707,000,000 pounds (1939).
How much pork, bacon, and ham does Iowa provide for people outside the state? At the rate of 64 pounds, how many people would be fed?

(b) Amount of Iowa beef and veal consumed outside the state

The average consumption of beef and veal by an American per year is 61 pounds (1939). What would be the total amount consumed in Iowa on this basis?
The production of beef and veal in Iowa is about 783,500,000 pounds (1939). How much beef does Iowa provide for people outside the state? At the rate of 61 pounds apiece, how many people would be fed?

2. Creameries, cheese factories, condensed milk factories

a. How many of these plants are in your county? Locate them.
How many are in adjacent counties?

b. Number of factories in Iowa making dairy products

Making butter	470
Making cheese	26
Condensing milk	3

c. Amount of Iowa butter sold to other states
How much butter do Iowa people eat? You can figure this out. The average amount of butter consumed by each American is 17 pounds per year. Look up the population of Iowa.
How much butter does Iowa sell outside the state? Figure this out. See table below for Iowa's production.
Make a graph of Iowa butter. Draw 23 rectangles the shape of a pound of butter. Each rectangle represents 10,000,000 pounds. Color yellow. Print *Eaten In Iowa* under the number of rectangles you have figured out in above problem. Print *Sold Outside of Iowa* under the rest of the rectangles.

d. Iowa's rank in butter production in a recent year

(1) Minnesota	311,000,000 pounds
(2) Iowa	245,000,000
(3) Wisconsin	183,000,000

e. Amount of Iowa cheese
In a recent year Iowa made 3,745,000 pounds of cheese. Was this enough for the people of Iowa? Do we have any extra to sell out of the state? The average yearly amount consumed by each American is 6 pounds.

3. Factories which use corn and oats
Corn Products Manufacturing Cities, 1941

	Number of people employed
Clinton	972
Cedar Rapids	593
Keokuk	297

Cereal Manufacturing Cities, 1941

	Number of people employed
Cedar Rapids	892
Keokuk	186
Davenport	130

Rank of Iowa
Iowa ranks second to Illinois in the manufacture of corn products.
Iowa ranks second to Michigan in the manufacture of cereals (breakfast foods).

4. Flour Mills—1941

	Number of people employed
Sioux City	95
Des Moines	90
Davenport	73

VII. The Corn Belt as a Whole

A. Importance in the nation's food supply
The corn belt occupies one tenth of the area of the United States.
The corn belt has about one tenth of the population of the Union.
The corn belt produces about one fourth of the food of the nation.
More than half the food produced in the corn belt is sold outside the corn belt.

B. Importance in the world
"The American Corn Belt produces more feed for livestock and more meat for man than any area of equal size in the world."
O. E. Baker: *"The American Corn Belt," Economic Geography,* vol. 3, p. 447

C. Boundaries
1. Northern boundary—relation to shorter growing season.
2. Western boundary—relation to decrease in rainfall.
3. Eastern boundary—relation to decrease in farm land due to increase in hills and mountains.
4. Southern boundary—relation to rough land in some sections, to competition with longer-season crops in other sections.

D. The great cities of the corn belt
1. Chicago, the second largest city in the United States
The largest railroad center in the U. S.—relation to location at the end of Lake Michigan
The world's largest meat packing center
The largest manufacturer of agricultural machinery in the U. S.

2. St. Louis, the largest city on the Mississippi River Advantages of a location near the junction of the Mississippi and Missouri rivers
3. Kansas City, the largest city on the Missouri River
4. Cincinnati, the second largest city on the Ohio River

Other Investigations on Iowa of Today

These activities are suggested as assignments for individual children or for committees of two or three children. The results, either in the form of oral reports or of illustrative material, should be worth the attention of all the children in the classroom, whether an ungraded room, a two-grade room, or a single-grade room. A program on Iowa, the culmination of the work of this unit, might be worth while for a parent-teacher meeting.

1. Mark the Iowa state parks on an outline map of Iowa. Write the Iowa State Park Commission, Des Moines, Iowa, for their booklet on State Parks. Mount the map in the center of a large sheet of tagboard. Select pictures of the most scenic spots and mount them around the map forming a border. Run a colored string from each picture to the park on the map where it was taken. Snips of Scotch cellulose tape (gummed cellophane) will hold the string without covering up the map or picture.
2. On a highway map of Iowa lay out the routes from your town to each of the larger Iowa State Parks.
3. Lay out an Iowa farm to scale on a large piece of cardboard. Cover each field with its crop; kernels of corn, grains of oats, hay, and whatever else is raised on this particular farm. The pastures might be covered with pieces of green paper, or with shredded green paper. If the cardboard is large enough so that a square yard represents a farm of 160 acres, the five-acre space which accommodates the farm buildings, the barn yard, the front lawn, and the vegetable garden would be only 9 inches long and 4½ inches wide. It would be extremely difficult to construct buildings small enough to fit such a small space. It would be better to mark the boundaries of each building and set up signs on which are printed *Barn, Silo, Hog House, Granary.*
4. Mark on a map of Iowa the location of the dams on the Mississippi River. There is a power dam at

Keokuk, the largest water-power development on the whole Mississippi River. The other dams between St. Paul and St. Louis are not for power but for storing water so as to keep the channel deeper and make navigation safer. The Iowa dams are located at or near Lansing, Guttenberg, Dubuque, Bellevue, Clinton, Le Claire, Davenport, Muscatine, north of the mouth of the Iowa River, Burlington, and Keokuk.

5. Make a collection of Iowa crops. Press the plants and mount on pasteboard and cover each card with cellophane.
6. Collect things made from corn. In some cases pictures or labels from cans and packages will need to be substituted for the real thing. Do not forget Mazola (corn oil), Karo (corn syrup), hominy, starch, maizewood (wall board from corn stalks, made in Dubuque). Rayon has been made of corn stalks in the laboratory, but no factory is using corn stalks for making rayon today (1941). Wood pulp and cotton are the raw materials used now.
7. Mark on an outline map of Iowa the leading coal producing counties. Counties in order of production in a recent year:

Marion	443,000 tons
Lucas	436,000
Appanoose	394,000
Boone	376,000
Dallas	366,000
Polk	290,000
Mahaska	207,000
Wapello	149,000
Monroe	139,000
11 other counties	300,000
Total	3,100,000

On this same map mark the location of Iowa's eleven cities of more than 25,000 population in 1940: Des Moines, Sioux City, Davenport, Cedar Rapids, Waterloo, Dubuque, Council Bluffs, Ottumwa, Mason City, Clinton, Burlington. How many of these manufacturing cities are in the leading coal-producing counties? In a recent year Iowa used a little more than 10,000,000 tons of coal. Make a

graph to exhibit with this map. Rule a bar 1 inch wide and 10 inches long. Mark off 3 inches and print *Mined in Iowa.* Mark the other 7 inches *Bought From Other States.* The title of the graph should be *Coal Burned in Iowa.*

8. On an outline map of Iowa locate the largest factories in the state. There are 11 factories that employ more than 1,000 workers, 1941:

A tractor factory, Waterloo	4,852	workers
A meat packing plant, Waterloo	4,450	
A meat packing plant, Ottumwa	2,855	
A meat packing plant, Cedar Rapids	1,489	
A washing machine factory, Newton	1,312	
A meat packing plant, Mason City	1,249	
A meat packing plant, Sioux City	1,225	
A fountain pen factory, Ft. Madison	1,142	
A sash, door, and interior-finish factory, Dubuque	1,089	
A meat packing plant, Des Moines	1,036	
A tractor factory, Charles City	1,002	

Which of these factories find their raw materials in Iowa? Which of the factories depend upon iron and steel? There is no iron ore smelted in Iowa. Where is the nearest place for these factories to obtain iron and steel? Investigate the iron and steel industry on the lower Great Lakes. Why do we have factories in Iowa that have to depend on other states for raw materials? Where is there a market for tractors? Which takes up more space, a tractor or the raw materials out of which it is built?

Which one of the factories depends upon distant forests for its raw material? In early times sawmills and woodworking factories were built in Iowa on the Mississippi River. Logs were rafted down the river from the forests of Minnesota. No logs have been rafted down to Iowa for thirty years. The sawmills closed long ago. But the mill work is still going on. Consider the space it takes to ship lumber as compared to window frames, doors, shutters, cupboards, stair rails.

9. Iowa's surpluses and deficiencies. Make a list of the foodstuffs of which Iowa produces a surplus.

There are some foods which we produce but not in a great enough amount to feed our people.

Let us investigate wheat. Our crop averages 7,500,000 bushels a year. It requires five bushels to make enough flour for the bread, cake, and crackers that the average American eats in one year. How much wheat does Iowa have to buy from other states?

Let us investigate sugar. Each American eats about 100 pounds of sugar per year. Iowa produces about 9,000 tons of beet sugar per year. How many tons of sugar does Iowa need each year? How much sugar does Iowa buy from outside the state in a year?

List foods we eat that are not produced in Iowa.

Some Investigations Into Iowa's Early History

1. Things of the Past and the Present

When the first settlers moved into Iowa they found certain of the items in the list below already here. Others were not here. Arrange the items under three headings:

(1) Found here by the pioneers.
(2) Introduced since then.
(3) Not here either then or now.

paved roads
dirt roads
Indian trails
bridges
rivers
places along some rivers where low banks and hard bottom permitted fording
railroads
forests over most of the land
trees planted in rows on farmsteads
woods in river valleys and around lakes
no frosts from early May until late September
many swamps and sloughs in north central section
oil wells
wild ducks
coal beds
deer
buffaloes
palm trees
rabbits
about five frost-free months
herds of cattle
coal mines
mountains
rapids in some rivers
water power plants
dams

prairie grass over most of the country	cold winters
boulders	seacoast
schools	automobile factories
log cabins	cement mills
sod houses	July days with temperatures in the nineties
corn fields	high waterfalls
mills to grind grain	lead deposits
fenced pastures	wooded hills along the larger rivers
rich prairie soils	gravel deposits
hot summers	ponds
grocery stores	lakes
corn canneries	wheat
salmon canneries	Indian corn
railroads	maize
woods in eastern and southeastern parts of state	hybrid corn
muskrats	clams
snow fences	turkeys
volcanoes	wolves
cotton fields	pigs
heavy rains in summer	walnut trees
much of the precipitation coming in summer	oak trees
prairie chickens	willow trees
	mahogany trees
	banana plants
	Delicious apples

How many of the items in your first column are things that nature provided? The first settlers did not use all of these when they came into the state, and many of the resources were not used then in the same way that we use them today. When neighbors are far away and there are no roads and it is difficult to get products to market, Iowans did not live in the same way that you do in the Iowa of today. They did not have the comforts that we have but that does not mean that it was impossible to live just as happily as Iowans do today.

2. Pioneers Moving into Iowa

Let us go back to the time when people were moving into Iowa in great numbers. Hundreds came up the Mississippi River by boat from Tennessee and

Kentucky, hundreds more came overland. This quotation is from the *Burlington Hawkeye* of October 17, 1839:

> "All who feel interested in the prosperity of this infant territory cannot be otherwise than gratified at the great number of emigrants who are rushing into it from all quarters. Every steamboat that stems the great Father of Waters to this and other points above us comes laden. People are pouring in upon us by way of northern and eastern Illinois in such numbers that the shore opposite this place almost continually presents the appearance of a large army with its prancing steeds and heavy baggage wagons, notwithstanding the steam ferry-boat is continually thinning its ranks. We are informed by travellers that the leading roads from Ohio and Indiana are crowded with emigrants all bound for Iowa . . . We bid them welcome. There is land enough and to spare."

cited in *Niles Register*, November 9, 1839, p. 168.

How did these emigrants reach the east bank of the Mississippi? How did they get wagons and goods across? (The first steamboat came into the Upper Mississippi River in 1823. See, *Steamboating on the Upper Mississippi, the Water Way to Iowa*, Wm. J. Peterson, State Historical Society of Iowa.)

After they crossed the Mississippi River, how did the pioneers reach their destination? Try to gather information enough to enable you to describe the trip of a family moving to a place sixty miles west of the point where they had ferried across the Mississippi. They have two cows, two pigs, some chickens, and all of their household goods. (Note to teacher: If you read Herbert Quick's novel, *Vandemark's Folly*, you will find an interesting account of one such trip.)

3. Settling Your Home Community

When did the first settlers move into your home region? A large size map (1 inch to the mile) of your county may be had from the Office of Postmaster General, Washington, D. C. These maps show the rural delivery routes, and every farm,

home, and school is marked on them. They cost 75 cents. They could be used for years—each succeeding class adding something. In time you may accumulate the information below, and place much of it on the map.

The location of the first farm houses in your community

What kinds of locations were chosen by the very first settlers—beside a river or creek? Near a spring? At the edge of a grove? On a hillside? How did they secure the land? Did they buy from the government? Did they homestead? Is the farm still in the family?

The building material

Were logs cut from trees in a nearby grove?

Was sod used because the region had no trees?

Was stone used for all or part of the house?

Was lumber from mills nearby available, or was it brought from the mills along the Mississippi River?

Was there a sawmill in your community?

It is said that in 1859 there were 540 sawmills operating in Iowa. Probably a little more than one tenth of Iowa was timbered when white men began to come in. The very first sawmills seem to have used oxen or horses as power. Others were run by water power developed along Iowa rivers; still others were run by steam engines which used wood for fuel. The larger ones along the Mississippi River were built in the 1840's when huge log rafts came floating down the river from Wisconsin and Minnesota. This business ended in the early 1900's. The mills on the Mississippi used the wastewood for power as they had no water power.

The Iowa counties which had the largest number of sawmills in 1859:

Linn	34 sawmills	Most of these counties with many mills are in what part of the state? Can you suggest some reasons why that might be expected?
Appanoose	20	
Jones	18	
Keokuk	16	
Decatur	16	
Jackson	15	
Bremer	13	

Despite the fact that Linn had 34 mills, Benton with only 8 did the most business of any county. The products of its mills were valued at $133,700, while Linn's brought only $70,795.

Note: The U. S. Census of Manufactures for 1870 gives figures for all saw and grist mills by counties. These data may be obtained more easily from J. A. Swisher's *Iowa, Land of Many Mills*, pp. 287-290. Iowa Historical Society.

What was the location of the first village in your community?

Was it at a crossing place on a river?

Was it where two roads crossed?

Was the village built after the coming of a railroad? In some parts of Iowa villages that were built before the coming of a railroad were abandoned when the railroad neglected them. A new village some little distance from the old one sprang up at the railroad station.

What was the business of the first village in your community?

Were there any stagecoach routes through your county?

Could you find information to help you place on your map the first piece of paved road in your county? Which railroad first came into your county? What was the date? How long was this after the first railroad came into Iowa?

Did a steamboat ever come up any river in your county? You may be surprised to know how many Iowa rivers were used in days before the railroad came. Today steamboats come to this state on only two rivers.

4. The Decline of Wheat and the Rise of Corn

Iowa has always had a deep, rich soil, but Iowa farmers have not always found it profitable to use it the same way. (Note recent attention to soybeans, a Chinese crop.) Crops suitable to our climate today were suitable to the same climate in the past. Iowa's climate has not changed. But Iowa farmers may change their crops. It is the Iowa farmer who decides what he is going to raise, and he changes his crops when he sees some advantage in doing so. Let us see what the history of his crop choices has been.

Iowa's Crops and Livestock before 1900 and in 1940 in round numbers (given in millions of bushels)

	Corn 000 Bu.	Wheat 000 Bu.	Oats 000 Bu.	Swine 000 head	Cattle 000 head
1850	8,700	1,500	1,500	323	137
1860	42,400	8,400	6,000	935	540
1870	69,000	29,400	21,000	1,354	1,006
1880	275,000	31,200	51,000	6,034	2,612
1890	313,000	8,200	147,000	8,267	4,895
1940	461,000	8,100	207,000	10,714	4,700

Corn has been the chief crop in Iowa since the very beginning of farming. By 1870 Iowa was the second corn state. Illinois was first. By the 1900's our crop record was close to that of Illinois and some years we were first. But it was not until 1918 that we climbed into first place to stay.

Iowa stood in the path of the westward march of wheat. In 1850 Pennsylvania was the first state in wheat, 1860 it was Indiana, 1870 and 1880 Illinois, 1890 and 1900 Minnesota, 1910 North Dakota, and 1920, 1930, 1940, Kansas. Notice how rapidly we increased our production of wheat. In 1870 Iowa was the second wheat state in the Union. But wheat marched on westward. What happened to our wheat crop by 1890? The drier lands to the west of Iowa could raise wheat profitably but not corn, so we gave up wheat and paid more attention to corn. What happened to our corn crop? To our oats crop? But it would not have paid us to specialize in corn and oats if we had not at the same time increased the number of livestock. Look at the history of our swine and cattle increase.

5. Early Lead Mining

Sometimes a natural resource which is very important in the early history of a region becomes exhausted. We have a good example of this in our own state. Even before people became interested in Iowa's good farm lands they learned of the rich lead deposits in what is now Dubuque County. The first white man to work those deposits was a Frenchman, Julian Dubuque.

How did Dubuque learn of the deposits?

Find out what you can about Dubuque's mining of lead.

Soon after Dubuque's death in 1810 white men were told to leave the Iowa region and did not have a chance to work the lead deposits until 1833. What reasons can you find for this? You may find pictures of some of the shot towers built in Dubuque. One still stands there. Most of the lead was sent down the river to St. Louis. How would the boats used in the 1830's compare with those used at the time of Dubuque? All boats using the Mississippi had difficulty with the rapids which stretched for seven miles just north of the mouth of the Des Moines River. There was a little Indian village whose name *Puckeshetuk* meant "foot of the rapids" at the place where Keokuk is today. The Indians shot the rapids in their canoes, but coming back upstream had to carry the canoes around the rapids. In the days of steamboats a canal was dug around the rapids for the boats to use in safety. When the Keokuk dam was built in 1914, the rapids were drowned in the big lake behind the dam. Locks were built in the Iowa end of the dam for steamboats to use. The old seven mile canal was abandoned.

Today Iowa is mining no lead. There is lead left in the rocks but it is too expensive to dig down deep enough to reach it. In other places in the United States there are larger deposits nearer to the surface and they supply our country's needs.

6. Early Mills in Iowa

Sometimes a natural resource which is valuable at one period in a region's history becomes less valuable as new needs and new inventions appear. We have an example of that in the rapids in Iowa's rivers. Mr. Swisher in his *Iowa, Land of Many Mills* tells us that at the peak of the wheat industry Iowa had "a thousand water wheels turning the grain into breadstuffs." Very few of these mills are left today.

Iowa rivers have no real waterfalls, but many of them have rapids. When dams were built at the rapids a small amount of water power could be obtained. Many of the first dams in Iowa rivers

were generally "brush" dams, because they could be quickly and cheaply built. In some places the dam was of logs placed lengthwise across the stream. In other places the dam was made of piles driven in vertically side by side or of stones dragged from the prairie or from nearby deposits of bed rock. Much later dams of concrete were built. Whatever the material, the purpose of the dam is to create a lake as high as possible above the location of the water wheel.

The grist mills were in the earliest days built of logs. Some of these were later replaced by frame, stone, or brick buildings. Many of the old mills were washed away in floods or burned. Few of them were replaced.

Investigate carefully in your home region to find if you had any early mill. What was the location of the dam? Of what was the dam built? Is there still a dam there? If the dam is gone you may be able to find a trace of the old rapids. If there was no mill near try to find out how far the early settlers traveled to get their wheat ground. Was it a day's trip or was it a week's trip? Some mills used millstones cut from Iowa boulders dressed so that each of the two stones had one flat face. Some used millstones brought from other states. If your town had a mill, can you find out what kind of millstones it had?

As better roads and railroads came into Iowa larger mills were built. They could work more quickly and grind more freely. Then men did not have to leave their farm work and wait for hours and even days to have a grist ground. The mills on little streams gradually gave up trying to compete with the improved machinery and large scale milling of the flour mills in large cities.

Summary

Iowa is only a_____sized state among the_____ states of the Union, but it sells more_____and_____ products than any other state. Our farmers are able to do this because they raise a larger crop of_____and of_____ than does any other state. Besides great amounts of these two feed grains, Iowa raises many other feed crops, such as

a_____, b_____, s_____, b_____, c_____, and t_____ hay. The reasons Iowa can raise so much feed are many.

1. We can farm a larger fraction of our land than can any other state.
2. We have a larger acreage of excellent land than any other state.
3. Many states have more farmers than we have, but we have many horses and tractors to help do the work.
4. Our summer is long and hot, and we have more rain in the growing season than during the rest of the year. Many other states have a more favorable climate than ours but none of them have as much good land.
5. We rotate crops and plant legumes (clover, alfalfa, soybeans) which are good soil builders.
6. Feeding our crops to livestock helps maintain the fertility of the soil.
7. We have drained most of our wet land and are paying more and more attention to water and soil conservation on our slopes.

Sample Test Items

1. Write *yes* or *no* to indicate which of the following tell why Iowa is an excellent place in which to grow corn.
   a. Deep rich soil over most of the state.
   b. Much of the state is hilly, and corn is a good hillside crop.
   c. More rain in April than in any other month, so the corn gets plenty of moisture when sprouting.
   d. About half of our annual rainfall of 50 inches comes during the summer months.
   e. No heavy frost after April first, so the farmers can plant their corn early in the spring.
   f. Long dry spells in June and July make the corn grow fast.
   g. Long summer days with much sunshine.
   h. Showers every week are usual in the summer.
   i. Flattish to gently rolling surface over most of the state.
   j. The southern part of the state has coal deposits.

k. About two thirds of our annual rainfall of 30 inches comes during the five frost-free months.
l. Corn grows until Thanksgiving time because there is no frost in October or November.

2. Name the three states in the corn belt whose initial letter is I.
   1. _____ 2. _____ 3. _____
3. What is the easternmost state in the corn belt? _____
4. In what state is the southwestern corner of the corn belt? _____
5. In what state is the northwestern corner of the corn belt? _____
6. Which of these crops is not raised in the corn belt—wheat, oats, soybeans, peanuts, barley? _____
7. The largest share of the corn belt farmer's dollar comes from the sale of eggs, corn, oats, hogs, or cattle? _____
8. What city slaughters the most livestock —St. Louis, Omaha, Waterloo, Chicago, or Cincinnati? _____
9. Over what route does Chicago receive the most livestock — Lake Michigan, railroads and highways from the north, railroads and highways from the west, the Illinois River? _____
10. Over what route does Chicago ship the most meat—Lake Michigan, railroads to the east, railroads to the west, railroads to the south? _____

Unit II—The Great Lakes Region: Forests, Mines, Dairies, Factories

Chief Objective

The whole region surrounding the Great Lakes was in early times one great forest. The lakes and the rivers leading to them were an invitation to the French trappers, traders and missionaries to invade the interior far from their headquarters along the lower St. Lawrence. Years after the trappers had gathered their rich harvest, the lumbermen came. Their cut increased year after year until the Lakes region

developed the largest lumbering industry in the United States. The forests were gradually cut over and prosperous lumbering days came to an end.

The Lower Lakes region was saved by its ability to develop the dairy industry which is today one of its mainstays. This belt is not endowed with as rich soil as the corn belt, nor did nature give it as hot summers. But the dairy industry can make use of poorer soils and cooler summers, both of which are kindly to pastures and meadows. Much of the milk and cream is converted into cheese and butter. These more compact and less easily perishable products can go a long distance to market. The shores of the Lower Lakes have attracted many manufacturing industries, not only because of cheap transportation over this great inland waterway but also because of access to large deposits of coal only a short distance to the south.

The Upper Lakes region deprived of its forest revenue could not turn to the same industries as did the Lower Lakes. In the Upper Lakes region some attempts have been made to farm the cut-over lands, but even on the small areas of better land, farming is difficult. This region lies far enough north to have relief from the heat of corn belt summer. The Great Lakes and thousands of small lakes make it even cooler than its latitude suggests. Summer weather favors visitors but not farmers. Large stretches of rocky and sandy land where farming has not succeeded have reverted to forests. This second growth is suitable for paper manufacture. At the larger water-power sites are paper-pulp mills. However, in its iron ore deposits, lies the greatest wealth of the region. The Great Lakes Waterway permits transportation of the heavy ore to manufacturing centers farther east. Large boats are busy all spring, summer, and fall carrying iron ore to the shores of the southern Lakes.

Outline of Content and Suggested Pupil Activities

I. Location

The outline map upon which we shaded the corn belt will be our Guide Map. As we go to a new region, let us mark it on our Guide Map. If we use a different color or shade for each region, it will stand out clearly and our map will be a better guide. The new region we are going to consider is the Great Lakes region. The Great Lakes region has two subdivisions: the Upper Lake region and the Lower Lake region. Therefore, we shall need to apply

two colors to the map. For the boundaries of each sub-region refer to your teacher's map. Let us call the map the Master map for it will help us prepare our Guide Map. (The teacher marks each new region on her map, according to the map on page — of this handbook, and posts it on the bulletin board for the children's reference. The value of this map work lies in the fact that the child is adding to his map each new region only as he studies it. Each new region becomes an individual not to be confused with any region he has studied previously. By the end of the study of the United States he will have needed thirteen colors and shades. The following are suggested: red, pink, purple, lavender, dark blue, light blue, dark brown, tan, yellow, orange, dark green, light green, and black.)

II. Early Industries in the Great Lakes Region

A. French explorers, missionaries and fur traders in the Great Lakes Region

1. French names

If you look over a good map of the Great Lakes states you will find many French names such as:

St. Ignace	Bois Blanc	Duluth (once written Du Luth)
Sault Ste. Marie	Charlevoix	
St. Louis River	Fond du Lac	
		Mackinac
		Prairie du Chien

2. French routes

Suppose we find out how the French came into the region. Let us follow the routes they used. Rivers were the first roads through the forests which covered the entire area. Find a map which shows the rivers clearly.

a. First start at Montreal with your canoe and come up the Ottawa River. If you find a rapids, you make a portage around it. That is, you take your canoe out of the water and carry it around the rapids, perhaps a half mile or a mile or three miles. Between Montreal and Georgian Bay there were forty portages, some of them from a river to a small lake or another river. Read all you can find about those trips and make a list of all the difficulties. How long would it take to carry a canoe three miles among trees, over logs and through swamps?

b. In 1673 Father Marquette and Joliet, an explorer, came to Green Bay and from there by rivers and lakes and portages reached the Mississippi River a few miles south of the present town of Prairie du Chien. Examine your map to see what rivers they are most likely to have followed. Have you ever seen the section of Iowa which these men saw the day their boat reached the Mississippi? What town is nearest the place? Find a good description of their trip on the Mississippi. Have you ever followed any part of their route?

3. Trading posts
   The French established trading posts at some points they considered valuable. Look up these early posts and decide what advantages they would offer to one trying to reach many Indian trappers, Mackinac Island, Green Bay, Detroit, Sault Ste. Marie, and Duluth.
4. Kinds of furs
   The furs most desired were beavers. Consult an encyclopedia.
   a. In what sorts of places could beavers be caught? Where were the huts built?
   b. Why were beaver skins especially valuable?
5. Routes back to the market
   From posts on the Great Lakes fleets of Indian canoes laden with pelts would travel to Montreal or Quebec each summer. After the French had built forts at Kingston, Canada, and Detroit, Michigan, to check some war-like tribes of Indians, it was safe to use the Upper St. Lawrence route. What long portage would be required on the section between Lake Ontario and Lake Erie? How is that portage taken care of today?
6. The coming of English fur traders
   Although Canada was no longer a French colony after 1763 Frenchmen continued to work through the region but they shared the trade with English traders.

B. Lumber becomes more important than furs
   1. The rise of lumbering
      As settlement spread westward from New England and New York men began to see the possibility

of making fortunes in the forests of the Great Lakes region just as they had been doing in the East. Study the table below to see into which state the lumbering industry came first and what changes took place.

Value of Sawmill Products

	Michigan	Wisconsin	Minnesota
1840	$ 392,320	$ 202,239	.....
1850	No data available		
1860	7,040,000	4,377,000	$ 1,234,000
1870	31,178,000	14,806,000	4,378,000
1880	52,449,000	17,952,000	7,366,000
1890	73,484,000	52,115,000	21,013,000
1900	42,517,000	39,944,000	25,891,000

2. Kinds of trees in the forests of the Lake states: white pine, spruce, tamarack

3. Methods of lumbering
   Try to find descriptions of the following:
   a. The cutting and hauling that went on in the winter when snow was on the ground. The big lumber companies sent cruisers ahead to look for good locations. After them came the camps. In a single camp there might be a hundred men who would cut during the four to six months frozen season. Many of the loggers came from Europe. In the 1870's to 1890's Scandinavians were pouring into the United States. Many Norwegians and Swedes found work in the forest.
   b. Floating the logs downstream when the ice went out in the spring. Then the lumberjacks laid away their axes and saws and took up "pike poles," "cant hooks" and "peavys." Sometimes the work on the river was very dangerous. "One great jam filled the Mississippi above Brainard for sixteen days. The crew worked themselves to exhaustion but the tangle was too deep and intricate to move. The foreman sent down the river for dynamite and the rivermen packed it among the tangled timbers. A long call was relayed up the winding river of logs—*Green-horns ashore!* Five blasts echoed over the forest.

With a grinding plunge and thunder the jam gave way." Walter Havighurst: *The Upper Mississippi,* p. 188. Have you read any of the Paul Bunyan myths of the North Woods?

4. Location of the sawmills
   Your map will show you these milling centers.
   a. Some mills were run by water power, generated at rapids or falls. St. Anthony Falls, where Minneapolis is today, had a sawmill in 1822 to cut timber for a fort. When Minnesota took up wheat growing a flour mill was started there. In 1870 there were twelve flour mills there. The St. Croix Valley began building sawmills about 1840, and at one time there were 133 sawmills along the river and its branches wherever there was water power.
   The following quotation describes Bay City, Michigan: "Sawmills lay along both banks of the Saginaw River for eight miles, 36 of them in 1873. The lumber lined the banks of the river so solidly that the Saginaw seemed to flow between wooden walls."
   b. Some sawmills were on rivers with no power at places near to good markets.
      (1) The Iowa towns along the Mississippi which we have mentioned before. These mills burned waste from the logs to run the mill.
      (2) The mouths of Michigan and Wisconsin rivers where lake boats could pick up the lumber and take it to such centers as Chicago or east to New York state.

5. The end of the forests
   To the first comers the great pine forests seemed unending. Today they are gone. The great lumbering industry lasted only about one hundred years. Great fires helped destroy the forests as well as the lumbering industry. Perhaps you can find a description of some of the terrible forest fires. What are ghost towns? Might the lumbering industry have lasted longer if men had been more careful? Where there was suitable land in the southern parts of these states fine farms developed. What happened farther north on the cut-over lands which had soil too poor for farming?

III. Present day industries

A. In the Lower Lakes region

1. Dairying

In the average year Wisconsin produces about one half of the cheese made in the United States. Verify this statement in your latest copy of *Agricultural Statistics*. New York ranks next but its production is much less. Wisconsin produces more milk than any other state but there must be reasons why she chooses to make it into cheese rather than butter. See if you can find reasons for her choice. Minnesota ranks next to Wisconsin in number of dairy cows. Examine the table below to find out how Minnesota's milk is used.

Butter production—Five year average

Total U. S.	1,682,663,000 pounds
Minnesota	283,946,000
Iowa	224,741,000
Wisconsin	164,316,000
Nebraska	83,930,000
Ohio	81,422,000

Which geographic region do you think probably ranks next to the Lower Lakes in butter production? What advantages do these Lower Lakes states have for dairying? Your text will help you. If you were a dairy farmer in a section near large cities might you dispose of milk in other ways than by selling to creameries and cheese factories?

2. Manufacturing

The Lower Lakes region has some noted manufacturing centers. It has a section known as "The Automobile Belt." Prepare a list of important auto manufacturing cities. You may have to talk to automobile dealers as well as read your textbook. Magazine ads might help you. *The Saturday Evening Post* might help as it contains many auto ads. How many auto cities do you find in Michigan? In northern Indiana and Ohio? In addition there are hundreds of plants producing auto parts.

Once upon a time this region of southern Michigan produced carriages and motor boats. Would training in this work help a young auto industry? Would

some of the same raw materials be used? The automobile industry is the greatest user of steel in this country. Near what steel districts is southern Michigan? Are the Great Lakes of any help to the industry?

3. Additional investigations
   a. Many Michigan towns started as sawmill towns. Perhaps you can find out the names of some of them.
   b. The western section of the south peninsula of Michigan is a fine peach growing region. What advantages has it over the Wisconsin shore just opposite? At what seasons is Lake Michigan the greatest help to fruit growers?

B. In the Upper Lakes region

1. Iron ore mining

About 80 per cent of the iron ore mined in the U. S. A. comes from Minnesota and Michigan. Minnesota mines three times the amount Michigan does. Locate the mining areas. In Minnesota you hear people talking of "the range towns." What does that mean? Which is the best known town on the "range"? Find descriptions of the great open-pit mines. How long is the haul by railroad to the docks at Duluth, Two Harbors, or Superior? Find pictures or descriptions of loading the ore into the lake boats. The large boats carry about 10,000 tons of ore. Suppose that ore had to move by rail, how many freight cars of 50-ton capacity would it take to move one boat load of iron ore? How many trains of 50 cars?

2. The Great Lakes route

Follow an ore boat to the "Soo" Canal. Perhaps you have a model of canal locks for use in class. Such a model may easily be made in an industrial arts class. Why was it necessary to have a canal when the St. Mary's River flows from Lake Superior to Lake Huron and is used for many miles by steamers? Why is it necessary to rush ore through the lakes in the summer season? Through what bodies of water will the ore boats go after leaving St. Mary's River if they are to be unloaded at Chicago or Gary? If they are to be unloaded at Cleveland?

The "Soo" is the busiest canal in the world. It carries more than twice as much freight as the Panama Canal. Find other heavy commodities which pass through the "Soo." What will the boats bring back from Pennsylvania and Ohio?
Wheat from Canada or North Dakota may make use of the "Soo." Some of this wheat is on its way to the chief flour milling city of the United States, Buffalo. It is since 1930 that Buffalo has surpassed Minneapolis. Some of the wheat is going to New York City. If it goes all of the way by water what canal will it use? Some wheat is going to Europe by way of the St. Lawrence. What waters will it use going down to Montreal?

3. Paper mills
   Many large paper mills are in this section. Prepare an explanation of this to give the class and show the location of some of the mills. What would be needed besides wood for a good paper mill location?
4. Summer resort business

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Unit III—The South: Cotton, Corn, and Tobacco Farms; Forests; Factories; Winter Resorts

Chief Objective

The South comprises about one fourth of the United States. Its long growing season and abundant rain give it opportunity for a great variety of crops. The South grows everything the North grows but pays special attention to crops the North cannot grow. It stretches so far to the south that the coastal regions are nearly frost free, and winter gardens are profitable and winter resorts attract many northerners. Despite the great advantages of climate, not half of the South is in farms. It is the better lands that the pioneers cleared. Forests remain on sandy lands, on wet lands, on rocky lands, and on steep slopes. In these forests is a flourishing lumbering industry. A wealth of water power, coal, and petroleum has led to the recent growth of manufacturing industries which have the advantage of an abundance of raw materials in the region. From earliest days the many navigable rivers of the region and the long mileage of seacoast have been valuable assets.

Outline of Content and Suggested Pupil Activities

I. The South today

A. Location on the guide map

The South is so large that we shall make three subdivisions: the Middle South, the Cotton Belt, and the Winterless Coastal Belt. Mark these three areas on your Guide Map. Copy the boundaries from your teacher's Master Map.

B. The Middle South

1. Location between the corn belt and the cotton belt

a. Would you expect this area to have a longer or shorter frost-free season than the corn belt?

Why? How does the amount of rainfall here compare with that in the corn belt? Consult the U. S. rainfall map in your textbook.

b. Would your judgment be that this area could grow a greater variety of crops than Iowa? Can you prove it from your text?

2. Amount of farm land

Would as large a fraction of this area be suitable for crops as in the corn belt? Using your physical map study the drawbacks to farming here. In how many of the states are there mountains?

3. Farming on good land versus poor land

a. Locate the better lands by studying the surface map and the pictures of farm scenes in your textbook.

b. Classify the following list of locations and other items under three headings.

(1) Rich farm land in the Middle South.
(2) Poor farm land in the Middle South.
(3) Not in the Middle South.

Blue-grass region of Kentucky	Large crops of cotton for sale
Cumberland Plateau (eastern Kentucky and Tennessee)	Corn the chief crop
Shenandoah Valley	Small crop of tobacco for home use
Blue Ridge of Virginia	Pastures on steep slopes
Lower Tennessee Valley	Peach and apple orchards on hillsides
Valley lands of eastern Virginia and Maryland	Poor roads and few railroads
Ozarks	Hogs feeding on acorns and nuts
More forested land than cleared land	Log cabins
Desert	Hogs and cattle fattened on corn
More land cleared than left in forests	Large fields of corn, wheat, oats
Large crops of tobacco for sale	More land in cotton than in other crops

4. Other resources

a. Coal

Two of the five most important coal mining states of our country lie in this region. Find a list of coal mining states in the *World Almanac*.

Copy the leading six states with the amounts of coal mined in each. How do the states in this group rank? Is coal from this region sold in your town? Is it considered high grade?

b. Rivers

(1) Tennessee River

Norris Dam is the largest of the dams of the TVA. Exactly where is it? What is the relation of the dams to the aluminum factories in the Tennessee Valley? Find out what the TVA (Tennessee Valley Authority) is doing for this section. Prepare a report to show how necessary it is that something be done to keep the soil of the region from being lost. How would that make better living conditions for the people?

(2) Ohio River

There is a great amount of shipping on the Ohio River. What cities are important river ports? There is more coal shipped on the Ohio River than any other commodity. Which direction will the coal move? Why? The Mississippi River towns of Iowa receive some of this coal. Over what route?

c. Scenery

There are four national parks in this section, three east of the Mississippi River. Find out for what each was set aside. Write a statement telling which you would like to visit and why. Pictures would be a help.

C. The Cotton Belt

1. Cotton, the main crop

In your text is a dot map showing the distribution of the cotton crop in the U. S. Compare the map with these figures for a recent year to see if you find them agreeing.

U. S. total	11,850,000 bales of cotton
Texas	2,846,000
Mississippi	1,704,000
Arkansas	1,413,000
Georgia	915,000
South Carolina	871,000
Alabama	785,000

Which other states grow considerable amounts? Make a list of the advantages which this region offers for cotton growing. Classify them under these headings:

(1) Advantages nature has given the region.

(2) Other advantages.

What drawback to cotton growing in western Texas is shown on the rainfall map? It is said that cotton farmers find outdoor work in their fields all year. Prepare a calendar showing the field work for each month. You will need to read much about cotton growing in order to do this well. More than half of the cotton which is used in our country is worked into textiles in southern mills. This would require that the bales be shipped to what cities? We export nearly half of our crop. At what ports might you expect to find ships loading bales of cotton? Investigate the uses of cotton seeds. In what form do you find them in your own home?

2. Corn, the second crop of the South

If you should take the trouble to make a close search in *Agricultural Statistics* you would find that four of the six cotton states, for which you have figures of cotton production, plant more acres in corn than they do in cotton.

Corn is used more as a food for man in the South than it is in Iowa. Find out some of the forms in which it is used. You may be able to find a southerner in your neighborhood who will tell you about the preparation of grits, hominy, and pone.

3. Other crops of the cotton belt
   a. Sweet potatoes vs. white potatoes.
   b. Peanuts. (In some countries they are called groundnuts. Why?)

      We do not raise enough peanuts; we import both peanuts and peanut oil.
   c. Rice—Americans only eat about five pounds apiece per year. The South raises more rice than we need. We export one fourth of our crop.
   d. Watermelons—Why are the melons of the South shipped to Iowa even though we raise watermelons here?
4. Forest work
   a. Investigate the forest map in your textbook.

b. Production of leading lumbering states in a recent year:

Total in U. S.	25,977 million board feet
Washington	4,572
Oregon	4,352
California	1,776
Louisiana	1,363
Alabama	1,326
Mississippi	1,220
North Carolina	1,156
Texas	1,126
Arkansas	1,096
Georgia	865
Florida	796
Virginia	617
South Carolina	560

c. How many of these lumbering states are in the cotton belt? Before cotton planters came into this region most of the land was forested. Which lands would the planters have cleared first? Which lands remain in forests today? How much of the lumber of the year given was cut in this southern region? Study your text carefully to find what kinds of trees are in the southern forests and how lumbering is carried on. What other products besides lumber come from these southern forests?

d. The paper industry is developing in the South, now that a process has been invented for using young pine. How fast will trees grow in the South as compared to other parts of the U. S.? Think of length of growing season, heat, and moisture. Is the southern paper industry as likely to run out of pulp wood as a region in the north?

e. The furniture industry is flourishing in the Carolinas. One town, High Point, N. C., ranks second to Grand Rapids, Michigan, in the production of high quality furniture.

5. Minerals of the South

a. On an outline map of the United States place the petroleum fields of the South. Keep your map and add other petroleum fields as you study other sections of our country. The East Texas

oil field is said to be the largest oil field ever discovered. How is oil taken from the ground? Discuss the problems of transporting crude oil to the refineries and the refined products to the markets.

b. Near Birmingham there is an iron and steel industry which is said to have had in some ways more favors from nature than any other iron and steel district in our country. What are those favors? Is there any way in which Birmingham and the oil fields can benefit each other? Remember that one of the products made at the oil refineries is lubricating oil and that one of the products made at Birmingham is pipe.

c. In Arkansas are large bauxite mines. Bauxite is the ore from which aluminum is obtained. Trace bauxite from the mines to a smelter in East St. Louis, then to aluminum factories in Alcoa, Tennessee.

6. Cotton mills

a. Importance of the South in cotton manufacturing

Value of Cotton Goods in a Recent Year

Manufactured in the U. S.	$1,035,827,000
Manufactured in the cotton-growing states (the only cotton-growing state which is not in the South is California)	728,127,000
Manufactured in the New England states	226,552,000
Manufactured in other states	81,148,000

Make a bar graph using the table above. Make a bar ten and one-third inches long to represent the cotton manufactures of the whole U. S. Mark off seven and one-fourth inches and print in this part of the bar *Cotton-growing States.* Then mark off two and one-fourth inches in which print *New England.* There will be less than one inch left, which is to be marked *Other States.*

b. Location of the southern cotton mills.

(1) Leading cotton milling states.

Rank of States in Cotton Milling
according to number of wage earners in a recent year

North Carolina	94,272
South Carolina	70,464
Georgia	58,947
Massachusetts	41,463
Alabama	31,262
Rhode Island	13,449

(2) Use of water power of the rivers which rise in the Southern Appalachians.
The cotton milling towns are not on the coast. Why? Nor are they in the mountains. Why?

D. The Winterless Coastal Belt

1. Major geographic understandings of the Winterless Coastal Belt
A narrow coastal strip and a peninsula form a region famous for fish, winter resorts, orchards, and winter gardens. Its southerly location gives it warm winters with only a few frosty nights. The long, hot summers are bearable because of the comforting sea breezes. Being on the edge of the tropics and having abundant rains, this region has palm trees and other broad-leafed evergreens. Many trees are draped with Spanish moss. These lands are so close to sea level and have such heavy rain that swamps are common. On the crop lands it is necessary to provide drainage. There is too much rain for cotton, but water-loving crops such as rice and sugar cane will grow. The winter is mild and vegetables grown then bring high prices in the northern markets. An orange and grapefruit industry flourishes in the sections that have the least frost. The warm winter attracts many winter resorters and there consequently is a large hotel business.
2. Latitude and length of growing season
In your text find the map which shows the length of the growing season. Compare the length of the

growing season of Iowa with that of Louisiana. What parallel of latitude crosses Iowa? What parallel crosses Louisiana? How many degrees of latitude between the parallel that crosses Iowa and the one that crosses Louisiana? A degree of latitude is about 70 miles. How many miles between the two parallels? How far south does Florida extend? The southern tip of Florida has no frost. What is the length of the growing season there? What is the most southern city in the 48 states of the Union?

3. Sugar cane plantations
   Total cane sugar production in the U. S. is 473,000 tons, of which Louisiana's share is 408,000 tons, and Florida's 65,000 tons. Why is the production of cane sugar limited to two states? Refer to the maps on length of growing season and of rainfall. Texas is the only other state to consider. Compare the rainfall of southern Texas with that of southern Louisiana and southern Florida. In normal times Americans eat about 100 pounds of sugar apiece. There are 130,000,000 people in the U. S. For how many people do Louisiana and Florida provide cane sugar?
4. Winter gardens
   Florida picks strawberries and tomatoes in January and February. Why is this possible? Some towns in Florida are named after the climate, the vegetation, the fish. Can you sort them out? Winter Garden, Frostproof, Palm Beach, Palmetto, Winterhaven, Winter Park, Pompano, Live Oak, Manatee.
5. Citrus groves
   Name all the kinds of citrus fruits you have eaten. They are harvested all winter long. Why is Florida a good place to grow them? Florida is the leading state in grapefruit, and is second in oranges. Practically all the citrus fruit of the U. S. is grown in three states: California, Florida, and Texas. Florida is the only one of these states that does not have to irrigate all her citrus orchards. Look at the rainfall map to find the reason.
6. Winter resorts
   Locate Miami and Palm Beach. Why is sea bathing possible there all winter long?

7. New Orleans, the city of the Mississippi delta
   How important to the people of New Orleans are the levees?
   What products do ocean going vessels take on board at New Orleans?

II. The South in early days

A. The Virginia settlements

As you have been studying about the large plantations of the South and the great number of negroes working there you have probably been wondering how a system of farming so different from ours here in Iowa came to be. One needs to go back to the coming of the first settlers to Virginia to find the beginning of the southern systems.

Find a description of the Jamestown Colony and its famous John Smith. When you have read all you can find about the colonists you will come to the conclusion that they had many tough problems to solve. Write a short paper comparing the life of a group of early settlers in Virginia, between 1608 and 1612, with that of a pioneer group in Iowa more than two hundred years later, in the 1830's. What advantages did the Virginians have that our pioneers did not have? What were the advantages that Iowa pioneers had?

1. Finding a commodity to sell
   Since the settlers in Virginia bought many things from England they needed some commodity to send back to pay for their purchases. Do your histories give you the names of any of the items which went into the first return cargoes?
   The commodity which finally proved very profitable was tobacco. In both Virginia and Maryland everything else was neglected for it. By reading in histories and encyclopedias see what you can find out on the following:
   a. Where did the English learn to use tobacco?
   b. Why was one of the great problems the planter had that of labor?
   c. What work had to be done before the ground was ready for planting?
   d. Were the stumps dug out?
   e. How was the ground prepared for planting? (In all of Virginia in 1649 it is said that there were only 150 plows.)

f. Examine all the evidence you can find to prove that even today tobacco growing needs much hand labor.
g. Who were the first laborers the planters hired?
h. When did the tobacco planters begin using negro labor?
i. Why were the lands along the rivers the most desirable?
j. Note the rich lowlands and the fact that Virginia had many rivers into which the small ships of that day could come and sail right to the planters' docks.
k. Suggest reasons why no large city developed in Virginia in early days.

2. Plantation homes
In Virginia and Maryland there were a few large plantations of thousands of acres, but there were hundreds of smaller plantations. Since the larger ones were more interesting, much has been written of them. Find a description of the plantation home with its many buildings, its slave quarters. Try to draw the layout of a plantation from the descriptions you read.

B. Rice and indigo plantations in South Carolina and Georgia

1. The need for a return cargo
When the settlement was first made where the city of Charleston is today, the people had the same problem that men had in Jamestown—the need of something to sell in England. Forests of long-leafed pine stood all about them, so they sent home lumber and pitch, tar and turpentine. In those days pitch and tar were used in all ship building. How? If you cannot find out, look up the word "oakum."

2. Two profitable crops
About 1685 a ship came into Charleston bringing a bag of rice from Madagascar, and some of it was sown. Find out what advantages the coastal lowlands offered rice growers. Rice soon became the chief commodity for shipment. Why did the rice growers use many slaves? Some twenty-five or thirty years later indigo growing was begun and

became very important. For what would the indigo be used? Find out what you can about growing it. Why did no one want to live near the indigo vats?

3. South Carolina develops a large city

Instead of living on the plantations as in Virginia, many planters chose to live in Charleston. There were a number of reasons why Charleston made a more desirable living place than the plantations. See if you can supply some of the reasons.

C. Cotton plantations

1. The invention of the cotton gin

It was not until the invention of the cotton gin that cotton became a profitable crop. Before the gin was invented how were the seeds removed from the lint?

When and by whom was the gin invented?

How did the gin work?

Why did the gin make cotton growing more profitable?

2. The spread of cotton growing

Take four outline maps of the United States. Print at the top of the first one *The Cotton States of 1791;* on the second, *Cotton States of 1801.* Prepare the third map for 1811 and the fourth for 1821. Using one dot for each 1000 bales, put on the proper information for each map, using the data below:

Production of Cotton in Early Times

1791		1811	
U. S. Total	4,000 bales	U. S. Total	160,000 bales
So. Carolina	3,000	So. Carolina	80,000
Georgia	1,000	Virginia	16,000
1801		No. Carolina	14,000
U. S. Total	80,000 bales	Tennessee	6,000
So. Carolina	40,000	Louisiana	4,000
Georgia	20,000	**1821**	
Virginia	10,000	U. S. Total	354,000 bales
No. Carolina	8,000	S. Carolina	100,000
Tennessee	2,000	Georgia	90,000
		Alabama	40,000
		Tennessee	40,000
		Virginia	24,000
		Louisiana	20,000
		Mississippi	20,000
		No. Carolina	20,000

South Carolina held the lead until the early 1830's when Georgia forged ahead. By 1839 Mississippi was at the top with 386,000 bales. Ten years later Alabama went to the top, but about 1889 Texas reached the top and has stayed there ever since. Suggest the chief reason.

As the planters moved westward in the southern states, some of them took up large tracts of land and bought hundreds of slaves. Virginia was a good place to buy slaves as many of its tobacco plantations were worn out.

D. Westward expansion across the mountains

While the people farther south could go westward around the southern end of the Appalachians, emigrants from North Carolina, Virginia, Maryland, and Pennsylvania had to find ways through the mountains.

1. The route through the Cumberland Gap

Daniel Boone was the explorer who as early as 1773 began leading groups through this gap. Find an account of his life and his many adventures with the Indians.

Of the 400,000 emigrants who as early as 1773 and 1800 went west, it is said 300,000 went by way of his route through the Gap.

On your map find the exact spot where Virginia, Kentucky, and Tennessee meet. That is the location of the Gap.

After you have read all you can find on these trips put yourself in the position of leader of one group making a migration from central Virginia to the Blue Grass region of Kentucky and write a description of the trip to someone back in Virginia. Make sure that the things you tell are those that might have happened. Explain why you settled near Lexington rather than one hundred miles farther east. If your group built a stockade at your settlement explain why and how.

2. The Ohio River route

Those who made use of the Ohio River thought of their trip in two sections: (1) the difficult route from eastern Pennsylvania or Maryland over to Pittsburgh or to the Monongahela River; (2) the trip on the Ohio River to Kentucky or Ohio. Wait-

ing for a boat on the river often meant a loss of weeks. Find descriptions of those early boats. Some of them were very peculiar. What were the dangers in the river itself? If you kept in the center of the river could Indian arrows reach you? Would you need to pull into the shore at night? Find pictures of the different types of boats that were used before the steamboats came. What names do you find given them? How were they propelled?

E. Demands for use of the Mississippi River

1. Many products to sell
   By the time Kentucky had a few thousand settlers she was finding it very difficult to ship things to the market east of the mountains. What commodities would the settlers have to sell, let us say by 1790, when farming was well started?
2. Choice of routes
   a. Over the mountains
      Livestock were driven across the mountains to eastern markets, even droves of hogs we are told. What would be the difficulties of a livestock drive? If the market were Baltimore and the farm near Lexington, Kentucky, how far would the drive be? Through woods or across prairie? How long would it take? What sorts of products could be taken by pack horse?
   b. Down the Mississippi
      What advantages did the Mississippi River route offer as compared with the route over the mountains? The disadvantage was that a foreign nation held the mouth of the Mississippi. What nation? When Kentuckians sent wheat, bacon, rope, or hides down the river, how did they get the cargoes to markets in the east? What could a foreign nation stationed at New Orleans do to prevent that?
3. The demand for the Mississippi route leads to a large land purchase
   Find out how we came to make the Louisiana Purchase.
4. Securing a large city as well as the river
   Investigate the beginning of New Orleans.

F. Differences between the South and the North grow greater

We have been seeing how the agriculture of the South differed from that of the North. As time went on other differences grew. The North became greatly interested in manufacturing, and factories could not use the type of labor that the South found profitable on its big plantations.

The North had manufactured goods to sell, the South sold in the main raw materials. Laws that would help the North often seemed to Southerners unjust to them. The strain between the two sections finally became so great that war resulted. How long ago was that war?

During the war the President issued a proclamation called the Emancipation Proclamation. What was its purpose? What was the feeling of that president on the subject of slavery? Each one of us should know the story of that president's life. Do you?

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Unit IV—The Great Plains: Ranches and Wheat Farms

Unit Objective

West of the moist lands lie the Great Plains, where the great handicap is shortage of rain. As settlement spread westward pioneers thought the land too dry for farming, so they crossed the Great Plains and pushed farther on west to the more moist areas. Even today the vast stretch of the Great Plains supports few people per square mile, chiefly livestock ranchers

and wheat farmers. Grain farms occupy the better sections of the semi-arid lands, while livestock ranches make use of the larger stretches where there is enough rain for grass but not enough for crops. The wheat farmers probably gamble with the weather to a greater degree than do farmers in any other section of the country. Undependable rain means wet years and bumper crops, dry years and crop failures. The growth of grain, forage crops, or grass is so small per acre that farms and ranches need to be much larger than farms in regions where rainfall is abundant. There is very little water for irrigation; therefore the Great Plains probably will never be able to support more than a sparse population.

Outline of Content and Suggested Pupil Activities

I. Location

Color your Guide Map with the ranching section of the Great Plains. Draw the western boundary at the base of the Rocky Mountains. See the teacher's Master Map for the location of the eastern boundary. Next, color the two wheat growing sections, the northern one in the Dakotas, the southern one chiefly in Kansas.

II. Use of the Great Plains today

A. By wheat farmers

1. Wheat lands and rainfall

On your map you have colored two wheat areas. They both lie on the eastern side of the semi-arid Great Plains. Why is the eastern side better for crops than the western side? Examine carefully the rainfall map to see what change takes place in rainfall as you trace from southern Louisiana to the eastern base of the Rocky Mountains in Colorado. Does your text indicate that these wheat lands have some years with bumper crops and some years with crop failures? What is the meaning of the term "erratic rainfall"? Our hard wheats grow in the drier regions of the country. They are in demand for the best bread flours.

2. Wheat lands and temperatures

One wheat region sows in the fall. In what states does it lie? What would be the advantages of fall planting? Wheat sown in the fall grows until the ground freezes. Would it be advantageous in a

dry region to have the wheat receive the benefit of fall rains?

What two adjectives would best describe the winters in the spring wheat belt? How do North Dakota January temperatures compare with those in Iowa. Fall planted wheat in North Dakota would be killed by repeated low temperatures.

3. Machinery

   Make a list of the machines that might be used on one of these large western wheat farms. Why would combines be more satisfactory there than in Iowa?

4. Marketing the wheat

   The two largest flour milling cities are Minneapolis and Buffalo. Why are the largest milling cities not located in the wheat belt? What advantage of power does Minneapolis have? What advantages of power and water transportation does Buffalo have? Minneapolis lost its first place to Buffalo by 1935. In that year Buffalo ground $90,000,000 worth of flour and grist mill products while Minneapolis ground $65,000,000 worth. What advantages does Buffalo have over Minneapolis?

B. By livestock ranchers

1. The range and rainfall

   Compare your guide map with a rainfall map of the United States in your textbook. Do you find any of the ranching region with a rainfall of more than 20 inches? Is this in the southern or northern sections? Would 25 inches in the southern section make grass grow any better than 20 inches in the northern section? Why? Look at the color-band physical-political map in your textbook or on the wall to find the altitude of these Great Plains. Some people use the term High Plains for the parts of the Great Plains. Why? Denver is called the Mile-High City. Why?

2. Layout of a sheep or a cattle ranch

   Size of ranch and number of animals

   Buildings

   Water supply, wells and windmills, ponded reservoirs

   Fields of alfalfa, grain sorghums

   Corrals

Dipping vats in the south where cattle tick is prevalent

3. Differences from north to south
   Severe winters of the north
      Need for shelter
      Greater loss of livestock in blizzards
      Need for supplementary feed
      Ability of sheep to stand colder winters than cattle can
   Milder winters of the south
      Greater numbers of cattle than in north
      Sheep's fleece lighter in weight than in north
   Use of grain sorghums in the south where summers are longer
   Necessity of dipping vats in the south where ticks are common pests
4. Marketing livestock
   The drive to a railroad shipping point
      Men on horseback
      Cattle and sheep grazing and resting en route
   Shipment to meat packing plants
      Denver, Omaha, Kansas City, Fort Worth
   Shipment to the Corn Belt for fattening

III. Exploring and settling the Great Plains

Long before the area we now know as the Great Plains was settled there were Americans from the eastern half of the United States in both Oregon and California. It was not because our citizens did not know about the Great Plains. Many groups of people had crossed them. The first travelers to give detailed information on the northern section were the men who made the trip all the way to the mouth of the Columbia River in 1804 and 1805.

A. The Lewis and Clark Expedition

Even before we had bought the huge area known as "the Louisiana Purchase," President Jefferson was planning to have the land across the Mississippi River explored. After the purchase was announced the exploring party headed by Captain Meriwether Lewis and Captain William Clark soon made ready to start. They kept a detailed diary. On some days Clark wrote, on others Lewis wrote. Sometimes both took notes. Secure for yourself as large an outline map of the United States as you can find, making sure that all of

the large rivers are on it. By means of short comments from their diaries you should be able to plot their route on your map, setting down the dates at the proper places. It will require careful work on your part. You will often have to consult an atlas in order to find places not named in your geography.

As you read these notes and find descriptions of the trip in your history or readers try to imagine yourself a member of the expedition. Before you begin reading, write a list of the provisions you would have taken with you. When you have completed it, compare with the list of items which they took. There were, by the way, 45 men in the party when it started. Lewis and Clark list of articles secured for the voyage as given in their diary:

14 2-bushel bags of parchmeal
9 2-bushel bags of common meal
11 2-bushel bags of corn, hulled
30 half barrels of flour
7 bags of biscuit
7 barrels of salt
50 kegs of pork
1 bag coffee
2 bags of sugar
21 bales of Indian goods
tools and many kinds of powder, ball, guns

Their boats were three: a keel boat 55 feet long, drawing three feet of water, carrying 22 oars, and one large square sail; two perogues or open boats, one having seven oars and the other six.

May 14—1804—4 P. M. They started up the Missouri River from their Illinois camp opposite the mouth of the Missouri.

May 15 "The barge ran foul three times on logs."

May 27 Met canoes laden with furs coming down from the Omaha Indians.

June 4 Traveled 17½ miles. The hunters killed 7 deer. (They had taken with them two horses. Each day two men were detailed to use them in hunting.)

June 7 Hunters brought in 3 bears.

June 10 Passed the mouth of the Chariton River (which flows through southern Iowa).

June 16 Already in need of wood to make oars.

June 24 Passed a bad sand bar where the tow rope broke twice. Camped on the point above the Kansas River. Unloaded the perogue and turned it up for repairs. Eleven and one half miles that day.

July 2 Needed 20 oars and all the poles to stem the current.

July 14 A large creek "called by the Indians Neeshnah ba-to-na was passed." (Look on an Iowa map.)

July 21 Arrived at the mouth of the Platte and found the Indians using skin boats.

July 27 Killed a deer but found the mosquitoes very troublesome.

Aug. 20 Sergeant Floyd died. "We buried him on the top of the bluff one half mile below a small river to which we gave his name." (Have you ever visited his grave near Sioux City?)

Aug. 25-26 Set the prairies on fire as a signal for the Sioux to come to the river. Killed some elk, jerked the meat and prepared the elk hides for tow ropes.

Sept. 16-17 Estimated 3,000 buffalo in one herd. Passed the mouth of White River.

Oct. 6 Passed a village of 80 neat lodges covered with earth.

Oct. 20 Reached one of the villages of Mandan Indians (near the present Mandan). These Indians raised a good deal of corn.

The expedition was now looking for winter headquarters. On the river near the villages they found a patch of timber and built log cabins. They depended on buffalo and other animals for meat and bought corn from the Indians.

April 7—1805 The ice gone from the river. Sent a crew down the river to St. Louis with the barge carrying dispatches to the government. At the same time the party started up the Missouri River with two perogues and six canoes. Took with them the Indian, Shabonah, and his squaw, Sahcajawea, and her young child. (This Indian woman had been stolen five years before from an In-

dian tribe through whose territory the expedition plans to pass.)

April 26-27 Reached the mouth of Yellowstone River. Shot several buffalo. Noticed coal. The wolves are killing many antelope.

May 2 Behold trees green, flowers on the plain, and snow an inch deep.

May 8 Came to the mouth of a river which Lewis says looks like a cup of tea with a tablespoon of milk in it. (What river?)

May 14 Sail of the perogue struck by a sudden squall which partly upset it. Everything had to be taken out and dried.

May 20 Passed the mouth of Musselshell River which is 2,270 miles from mouth of Missouri River.

June 3-8—Camped at mouth of Marias River. Men spent the time dressing skins for moccasins and clothing. Feet are badly cut by stones while towing.

June 9 Made a cache on a bluff and left the red perogue in a thicket on an island.

June 15 Report the current very rapid. Men walk all day day over sharp stones hauling the boats. Rapids becoming numerous.

June 16 to July 8 Much time was spent in making an 18-mile portage around the falls of the Missouri. Too far to carry canoes and provisions, so cut down trees to make trucks. Found a cottonwood tree large enough to permit cutting wheels 22 inches in diameter. Made axle of mast of the white perogue. Both wheels and axle wore out before they had gone 10 miles. Made a camp at Whitebear Island nor far above the mouth of Medicine River. Many trips needed to get all the canoes and goods over the portage. Prickly pears cut feet terribly. Had brought with them an iron boat frame 36 feet long. This they covered with skins. Killed many buffalo and dried the meat.

July 9 Placed the skin boat in the water. Loaded goods. Boat leaked.

July 10-15 Went upstream some miles to a place

where there were trees. Broke 13 ax handles in one day but finally made two canoes, one 33 feet long, the other 25. Set out with 8 canoes heavily laden.

July 25-29 Arrived at the three forks of the Missouri River. Called the southeast fork "Gallatin," the middle fork "Madison," the southwest fork "Jefferson." Stayed there several days, hunting deer and elk, making new moccasins and leggings. Started up the Jefferson River.

Aug. 12 Lewis states that he walked ahead of the canoes and climbed the divide. Before going across he drank cold water from a little stream which flowed toward the Missouri River. He walked to the top of the ridge, descended ¾ of a mile, and drank from a stream flowing into a branch of the Columbia (the Continental Divide).

Aug. 13-17 Met the tribe of Indians from whom Sahcajawea had been stolen five years before and bargained with them for horses to carry goods across the portage to a branch of the Columbia River.

Aug. 31 After much difficulty the party succeeded in buying 29 horses, not enough to carry both men and packs. Set off following the Lemhi River.

Sept. 12 Crossed the Divide between a river they called Clark and another they called "Lewis" (now called the Snake).

Sept. 16 Food has been scarce for several days. High in the mountains. Snow is deep. Clark speaks of being afraid that his feet would freeze. The horses have become very weak.

Sept. 25 Reach the Clearwater River and decide to build five canoes. Now able to buy dried salmon. Many of the men very sick.

Oct. 10 The party camped where Lewiston stands today. Purchased several dogs for food. Go on down the Snake.

Oct. 13-14 Many dangerous rapids. One canoe sunk, much cargo lost.

Oct. 17 Reach the Columbia. Report it so clear that a salmon may be seen at a depth of fifteen feet.
Oct. 19 Passed the mouth of the Umatilla River.
Oct. 21-23 Rapids and portage and more rapids. Bought 8 dogs to eat.
Oct. 25 Camped near the Dalles of the Columbia. The canoes have become very leaky from hauling over the rocks.
Oct. 31 Boiling, rocky rapids. Named them "The Great Chute." Portage over slippery rocks.
Nov. 2 More portage. Made 29 miles today. Rain.
Nov. 6 Pass the mouth of the Cowlitz River on the right. Find an Indian who speaks a few words of English. Rain and fog.

The party had much trouble in the lower Columbia. Rain and fog and rough water delayed them for days, but on Friday, November 15, they made camp in full view of the ocean, probably across the river from the present town of Astoria.

B. The Santa Fe Traders

Between 1822 and 1843 people learned a great deal about the southern Great Plains from traders who carried goods between the Missouri River towns (east of the present Kansas City) and Santa Fe, New Mexico. These traders loaded into their huge covered wagons such goods as firearms, hatchets, calico, cotton sheeting, knives, traps, and trinkets for Indian trade. The wagons hauled by four or five yoke of oxen gathered into caravans of from twenty-five to one hundred and set off in the spring on the six weeks' trip to Santa Fe.

Using your map estimate the distance. Ten to twenty miles made a day's journey. Where possible, a route along a river was followed. What four or five advantages would that offer?

The worst section of the whole trip was the fifty-mile crossing from the Arkansas River to the Cimarron River. Estimate the location of this.

Josiah Gregg, who made many trips, has told us of the difficulties of the trip between the two rivers. In the evening he said the order came to "Fill the water kegs." The cooks busied themselves preparing all the

provisions possible. The first five miles after leaving the Arkansas was through sand hills where a wagon might easily overturn. In crossing creeks it was not uncommon for a wagon to tip over. If there was water in the creek one might see for hours afterward all the calico the wagon carried spread out on the plain to dry. In some stream bottoms there were beds of quicksand. Since there were no roads nor streams to guide them a caravan might lose its way and wander for days without water for oxen or horses. Always here as in other parts of the route there was the danger of Indian attacks.

On the return trip the traders brought back beaver skins, gold, Indian blankets, and mules. The trip back was made in less time. Suggest reasons for this.

C. Buffalo hunters

Buffalo-hunting Indians occupied most of the Great Plains until the 1860's. It is estimated that there may have been from three million to five million buffalo on the plains. The Indians made use of them in dozens of ways. Make as complete a list as you can. Hundreds of white hunters went on the plains when the railroads reached far enough west to make the shipping of hides to the east profitable. From 1872 to 1874 it is said that more than a million buffalo hides were shipped to eastern markets. Can you find anyone in your town who has an old buffalo skin coat or lap robe?

D. The coming of the livestock ranchers

The Texas section of the plains was raising livestock before other sections. Someone has said: "In the late 1850's Texas was one great cattle ranch." You may be able to find accounts of the long "cattle drives" north to the railroad towns of Kansas.

Gradually men found out that the grass farther north was valuable even in winter when it turned brown. Cattle by the thousands soon fed on these unfenced free lands. You will be able to find much information on the work of the cowboys, the round-up, the branding of cattle. What now has happened to the "open range"?

E. The coming of the farmers

Gradually farmers began to come on to the plains.

They tried to use the same farm practices they had in the humid east. In years of good rain they succeeded, in dry years crops failed. Hundreds of farmers gave up and came back to Iowa and Missouri. Others stayed hoping for years when more rains would fall.

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Unit V—The Mountainous West: Mines, Forests, Oases, Vacation Lands

Unit Objective

In this vast area of mountains and of deserts and semi-arid plateaus live very few people. Widely scattered throughout this region are small spots of denser populations. Minerals, valley land with a supply of irrigating water, or beautiful scenery have been the attractions. On the lower slopes of mountains where heavier rains and lower evaporation have fostered tree growth, our largest national forests have been reserved. The large size of the region, the sparse population, and the mountain barriers have combined to hinder the building of railroads and roads.

Outline of Content and Suggested Pupil Activities

I. Location

See the teacher's Master Map on the bulletin board. Add this region to your Guide Map. What states lie entirely within this region? What states have their eastern sections in it? What states have their western sections in it? Why is this region called the Mountainous West? Name and locate the three great mountain belts which rim this region. Three great plateaus are enclosed. Notice the many short mountain ranges on the plateaus.

II. The Western Interior today

A. Population density

There are seven states whose population density is less than 10 per square mile. Name them.

B. Grazing industry

Relation to rough land, scanty rainfall, poor soil, large area

Sheep versus cattle

Use of mountain pasture above timberline in summer

Sale of lambs to irrigation farmers to fatten on alfalfa

C. Irrigation farming

Location of oases

Source of water, the mountains

Storage of water

Use of the land

Crops which take little water—alfalfa

Specialty crops under intensive cultivation—sugar beets, apples, peaches, head lettuce, cherries, potatoes

D. Dry farming on the Columbia Plateau

Wheat farms on the rich lava soils of semi-arid eastern Washington

E. Mining

Copper

The leading three copper-producing states

The importance of this copper to the rest of the United States

Gold and silver

Mountain mining camps

Desert mining camps

Ghost towns

F. Tourist industry
   In national parks
   In national forests
   On dude ranches
G. Forestry
   Reasons for government reservation of forests
      To preserve slopes from erosion
      To conserve water supply
      To insure a permanent supply of timber
   Work of the forest rangers
H. Cities
   Salt Lake City, the market of the Utah oasis
   Spokane, a flour milling city
   El Paso, a smelting city

II. Early days in the Mountainous West

A. The fur "brigades"

Three great fur companies sent trappers into the Rocky Mountains and across them in the early 1800's. Beaver skins were the furs most desired. Down the many tributaries of the Missouri in the spring came the boat loads of fur. Regularly each spring the American Fur Company sent a steamboat away up stream to the mouth of the Yellowstone to bring down a load worth many thousands of dollars. What can you find out about the trappers and their work?

B. Mining camps of the early days

For gold or silver men often went into very difficult places and established mining camps. Often these towns would grow to five or ten thousand and when the mineral was gone all the people left. Men often refer to them as ghost towns.

C. Building the railroads across the mountains

Trace the route of the Union Pacific which follows for hundreds of miles the route of the old Oregon Trail.

What year did building start?

One crew began building westward from Omaha, the other eastward from Oakland. They met at Ogden, Utah. Which crew laid the most miles of track?
Which crew built the longest mileage without tunnels?
Which crew had the longest stretch of desert to cross?
Which crew had most trouble with snow in the mountains?

Which crew had to have its equipment brought by steamboat over the ocean route? Why did the boats take such a long round about route?
Boats to California do not do that today.

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Unit VI—The Pacific Northwest: Forests, Farms, and Fisheries

Unit Objective

The rich lowlands of the Pacific Northwest attracted thousands of agricultural settlers from east of the Missouri River, even though to reach the goal required a wagon trek of nearly two thousand miles over dry lands and mountains. This long, narrow, coastal land backed by high mountains is deluged with rain brought by the westerly winds. The sea influence is so pronounced that the winters are cool but not cold and grass stays green all the year around. The summers are warm but not hot. As a result of this climate, dense forests of giant

trees covered the area. A vigorous lumbering industry produces more lumber per acre than in any other forest in the United States. Some of the abundant water power has been harnessed and runs large sawmills. Some of the areas which have been logged off have been cleared of stumps and prepared for farming. Dairying is a favorite industry and there are many milk condensing plants to process milk into non-perishable form. The climate is particularly favorable too for sweet cherries and berries. The salmon fisheries provide another source of wealth for this region. To make the fish available for distant markets a large canning industry has developed, and canned salmon are shipped far and wide.

Outline of Content and Suggested Teaching Procedures

I. Beginning of settlement in the Pacific Northwest

A. The founding of Astoria

The furs of the Pacific Northwest were a valuable prize. John Jacob Astor, head of the prosperous American Fur Company, decided to establish a trading post at the mouth of the Columbia River and sent out two expeditions:

By sea: A vessel, the Tonquin, left New York in September, 1810.

Reached the mouth of the river in March, 1811.

Overland: The expedition left the fur trading center of St. Louis, March, 1811, used horses to the Snake River, tried canoes there but found them too difficult and went back to land travel. After a terrible trip Astoria was reached in January, 1812. Astor's plan was to gather furs in the Northwest, sell them in China, and load his ships with Chinese goods which he could sell in Boston, New York, or Philadelphia. The war of 1812 interrupted Astor's plans and the post of Astoria fell into the hands of the British.

B. The coming of American settlers over the Oregon Trail.

Where did the Trail begin? Where did it end?

In 1842 about 100 persons went over the Trail.

In 1843 about 1,000 people went over the Trail.

In 1847 more than 4,000 persons went over the Trail.

Find from histories and readers information on the difficulties of the 2,400-mile route over plains, mountains and desert: the type of wagons, water supply, food, fuel, Indian dangers, sickness. Which do you think was the worst section of the whole route?

C. Growth of Portland and Seattle
Portland was not founded until 1845, Seattle in 1850, yet they have both far outgrown Astoria. Suggest reasons.

II. Development of the Pacific Northwest

A. The land of large trees
From the table of lumbering states given under the unit on the South prepare a graph showing the lumber produced in the states of the Pacific Northwest as compared with the entire country. It is safe to count California in this area as most of her lumber comes from the northern section. Collect pictures and information on methods of lumbering. Try especially to find something on the use of machinery in the forests.
What advantages has nature given this region for the growing of forests? Compare the rainfall map and the forest map. Explain why we should try to keep much of this area always in forest. In what two lowlands has most of the clearing for farming been done?
Find a description of a forest fire in this region. What can be done to prevent such fires?
Investigate your lumber yards to see if they are receiving Sitka spruce, Douglas fir or redwood lumber from the Pacific Northwest. Try to find out something about the cost of bringing it the great distance. Are there houses in your area which were built when lumber came from Minnesota? By 1910 no more logs were being rafted down the Mississippi River from Minnesota.

B. The land of waterfalls
This section of the country has a large share of our country's water power. Explain why one might expect this. Think of the amount of rainfall and the slopes of the Cascades. Much water power is used by lumber mills. Where are the great milling centers? How are logs brought to them? Are the sawmill cities conveniently located for shipping lumber by sea as well as by land? Are there sections of the Pacific coast of the U. S. which would need to buy lumber from the Northwest? Why?

C. The land of the "contented cow"
Signs in the Puget Sound lowland say: "Drink milk

from the home of the contented cow." Could dairymen there present any better arguments for putting up such signs than Iowa dairymen could? List your arguments but be sure you have evidence to prove them. Think of summer temperature, winter temperature, amount of rain, condition of the grass. This region is free from flies. Would that fact be appropriate in your list of arguments?

D. Salmon fishing

You will need to find out something of the life of salmon in order to explain the fishing industry of the Columbia River. How is the fishing done? During each salmon run it is necessary to designate certain days when fishing is restricted. About fifty miles east of Portland is Bonneville Dam, 170 feet high, built to improve navigation on the Columbia and furnish more water power for the region. The dam is a hindrance to the movement of salmon. Try to find out what has been built at the dam to help the fish go up to the water above.

E. Three large cities

The Pacific Northwest has three large cities. Arrange them in order of size and prepare two lists headed: 1. ways in which these cities are alike; 2. ways in which they are different. Examples: On list 1—All three are ports for ocean going vessels. On list 2—Portland is on fresh water—the other two on salt. You should have a long list under each heading. Consider what states they are in, what high mountain is visible in clear weather, what kinds of factories they have, which city carries on most of the Alaskan trade, which city is the home of the Boeing airplane factory, which cities receive rafts of logs.

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Unit VII—The Pacific Southwest: Irrigated Farms and Winter Resorts

Unit Objective

This land of summer drought and winter rain is free enough from frost to permit the development of a large citrus fruit industry, where irrigating waters are available. These same conditions favor the growth of a great variety of other fruits and vegetables. The rainless summer permits drying fruits out-of-doors. The canning industry puts California's fruits and vegetables on distant markets all year around. The rains of winter encourage fall planting of wheat and barley on plains where no irrigation water is available.

The specialties of California were once very different from those of today. For scores of years a grazing industry supported the Spanish and Mexican settlers. With the discovery of gold came hordes of men from other parts of the United States. After the gold fever subsided came the day of the wheat farmer and finally the irrigation specialists.

Streams from high mountains provide power as well as irrigating water. Petroleum and natural gas fields add to the power supply. Cheap electricity and agreeable year-around climate are assets for the moving-picture industry and the aeroplane industry. The special charms of winter attract hordes of visitors from colder sections of our country.

Outline of Content and Suggested Teaching Procedures

I. California present day specialties

A. Fruit growing

1. Citrus fruits

Orange producing states in a recent year

California	45,000,000 boxes
Florida	29,000,000
Texas	2,000,000
Arizona	500,000
Louisiana	200,000
Alabama and Mississippi	130,000

The orange groves are in the southern part of each state. Why? Investigate the rainfall map and see in which states the oranges must be irrigated. In most orange groves it is necessary to protect from the few light frosts which occur. How is this done? Why does California burn oil for frost protection while Florida burns wood? Why are no citrus fruits grown north of latitude 35 degrees north?

2. Other fruits

California is the greatest fruit-producing state in the Union. Make a list of all the fresh fruits from California you have eaten in Iowa. Look at the labels on boxes of fresh fruit in the stores in the summer and in the fall. The rest of the year we obtain canned fruit and dried fruits from California. What state dries practically all the fruit dried in the U. S.? What state also cans more fruit than any other state? Make a list of dried fruits. See if the labels on canned fruits tell where the fruit was canned.

B. Irrigation water supply

California would not be able to grow fruits if it were not for the large supplies of irrigation water. Practically all the fruit must be irrigated. Notice the location of the lowlands. Then check on the rainfall map to find how much rain falls on the lowlands. Have you located the Imperial Valley where dates are grown? the Los Angeles Valley where oranges are most important? the great Central Valley where most fruit is dried? many small coastal valleys with their canneries?

Search for irrigation water for California's fruit lands.

First investigate the rainfall map and find the rainfall on the Sierra Nevada Mountains. Find the many branches of the San Joaquin (pronounced San Wahkeen) and the Sacramento Rivers, which furnish water for the Great Central Valley. For the Los Angeles Valley there is some irrigation water from the San Bernardino Mountains, but not enough. Los Angeles built a long aqueduct to the Owens River, north of Mt. Whitney, and a second one to the Colorado River. The Colorado River supplies the Imperial

Valley also. In order to store water, what huge dam was built across the Colorado River? Boulder Dam is such a giant that a special report on it would be worth while.

C. Manufacturing in California

1. The most important manufacturing states west of the Mississippi:

California	$2,900,000,000	value of products in a recent year
Texas	1,581,000,000	
Missouri	1,505,000,000	
Minnesota	937,000,000	
Washington	677,000,000	

2. Airplanes

California builds more airplanes than any other state in the Union. The Los Angeles and San Diego districts are the favored places for this industry. However, the raw materials are lacking. Aluminum, copper, iron and steel are shipped from other parts of the U. S. Look up each of these raw materials in the index of your text and find out from what states each might be obtained. Trace the route each might take to Los Angeles or San Diego. What are the possibilities of a long cheap water haul from eastern U. S.? Consider the Panama Canal when planning such a route. What are the advantages of assembling raw materials from distant places at Los Angeles? Think of the great amount of hydroelectricity which is available. California has harnessed the most water power of any state. Also consider the large petroleum field in the Los Angeles district. California produces more petroleum than any other state except Texas. The climate is another great attraction. What kind of weather makes possible the testing of airplanes all year around?

3. Movies

About nine tenths of all the movies are made in California. The Hollywood section of Los Angeles is famous all over the world, for American movies are shown in motion picture theaters everywhere. What are the advantages of California for the moving picture industry? Consider the sunshine, the

possibility of shooting summer scenes all year, the many kinds of scenery, and the nearness to a location where there is snow all year. Can you find a snow field in California in the summertime? There is also a desert near Los Angeles. Where?

D. Tourist business
   1. Winter resorts
      Collect advertisements to see what attractions in the way of climate and scenery are offered.
   2. National Parks
      What are the attractions of California's national parks?
   3. Summer attractions of seaside and high mountains

II. Early missions and mines of California

A. Mission settlements of the California coast
   1. Founded by the Spaniards
      In 1769 a Spanish mission was established at San Diego. By 1784 a whole chain of missions stretched along the coast from San Diego to San Francisco. While one of the Spanish leaders was looking around San Francisco Bay for a good mission site the Liberty Bell at Philadelphia, 3,000 miles away, was proclaiming the signing of the Declaration of Independence. These missions were set in fertile valleys where there was a water supply. Try to find the locations of these twenty-one missions.
   2. Work among the Indians
      The mission Fathers obtained from Spain oranges, grapes, and olives to start orchards and vineyards. Great herds of cattle were tended by Indians on the higher slopes of the Coast Range in summer, on the lowlands in winter. Construction work on churches, monasteries, and workshops kept many busy. Perhaps you can find descriptions of life around an early California mission settlement or pictures of some such mission as Santa Barbara. How did the Fathers travel from one mission to the other? What one product from the herds would stand the slow shipment by sail boats around South America to the East?
   3. California changes governments
      Beginning with 1822 when Spanish control was over, California went into the hands of Mexico.

The missions fell into decay and the Indians wandered away. In 1846 California became a part of the United States.

B. The Gold Rush

1. Effects of the discovery

In the fall of 1848 gold was discovered by someone working along the American River. What is the story of the discovery? In the spring of 1849, 42,000 men went overland to California and 39,000 went by sea. Try to trace these land routes: the Oregon and California Trails, the Santa Fe Trail and Gila River lowland.

The water routes by Cape Horn and across the Isthmus of Panama are easier to trace. What special difficulties did each water route present? (Note: After reading all available material each pupil might choose one route to discuss—locating it and pointing out the difficulties.)

2. Methods of mining

In much of the mining area placer methods could be used. Demonstrate this method. Even though the method was cheap many men made nothing. Why?

C. Men turn to farming

1. By 1860 gold mining was declining and thousands of men who had come to mine stayed to farm. Even before the gold rush there were some very large ranches in the valley. Now large scale wheat farming began. One famous ranch in 1874 had 1,000 acres in a single wheat field. The soil was rich and the valley floor flat, but the summer droughts made both grazing and farming uncertain.
2. Irrigation fruit and vegetable farming finally developed and became profitable when quick transportation and refrigeration were introduced.

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Unit VIII—The Manufacturing Northeast

Unit Objective

The Northeast is the most densely populated part of the country. Most of the people live in cities and make a living by manufacturing and trade. Power and transportation advantages have attracted more factories to this section than to any other section in the U. S. Large deposits of high-grade soft coal and many water-power sites provide cheap power for factories. A network of waterways, interior and coastal, provides cheap transportation for raw materials and finished products. Easy lowland routes through the mountains aid railway and highway transportation.

Though the farms of the region are numerous they are small and are unable to feed the millions of workers in the factories, mines, and transport. Rough topography limits to a small acreage the land available for crops, but does not discourage the dairying industry. The abundant summer rains produce good pasture and a supply of hay for the snowbound winters. Most of the milk goes daily by truck and train to the large city markets. On fertile crop lands are many market gardens and fruit farms. Their perishable and bulky products find a good market in the cities. Another source of food is found in the coastal water where large quantities of fish abound. De-

spite this local production of food, the region depends upon the rest of the United States for meat and bread, butter and eggs, and out-of-season fruits and vegetables.

The resources for manufacturing were in the Northeast from its earliest beginning, but manufacturing is not a pioneer industry. Clearing land to grow crops, fishing, and lumbering occupied the attention of the colonists for a long time. Increasing population and independence from the mother country stimulated the settlers to do more manufacturing to satisfy their own wants and to sell to other colonies.

Outline of Content and Suggested Pupil Activities

I. Importance of the Northeast today

A. Population density

On an outline map of the United States color red all of those states which have a population density of more than 200 to the square mile

Rhode Island	644 people per square mile
New Jersey	537
Massachusetts	528
Connecticut	333
New York	264
Pennsylvania	214
Maryland	164
Ohio	163
Illinois	136
Delaware	121

The total population of the region is about 42 million. What fraction is that of the total population of the United States? The area of the section is about 296,200 square miles. What fraction of the total area of the United States? In the table below are the twelve cities of the United States which according to the 1940 census have a population of more than half a million. Place on your map all of those which belong in the region.

New York	7,380,259
Chicago	3,384,556
Philadelphia	1,935,086
Detroit	1,618,549
Los Angeles	1,496,792
Cleveland	878,385
Baltimore	854,144

St. Louis	813,748
Boston	769,520
Pittsburgh	665,384
Washington	663,153
San Francisco	629,553
Milwaukee	589,558
Buffalo	575,150

B. Share in U. S. manufacturing

Let us make sure first that this section of the United States is making more than its share of our total manufactures. From the list given below figure the value of manufactured goods for the section. It is safe to count one half of Ohio's value since the manufacturing is chiefly in the east.

The leading manufacturing states of the U. S. A.:

Value of products in a recent year—

New York	$7,314,000,000
Pennsylvania	6,032,000,000
Illinois	5,304,000,000
Michigan	5,296,000,000
Ohio	5,100,000,000
New Jersey	3,253,000,000
California	2,900,000,000
Massachusetts	2,621,000,000
Indiana	2,498,000,000
Wisconsin	1,772,000,000

Value in other states of the Northeast:

Connecticut	$1,262,000,000
Maryland	1,096,000,000
Rhode Island	517,000,000
Maine	349,000,000
New Hampshire	250,000,000
Delaware	124,000,000
Vermont	112,000,000
District of Columbia	74,000,000

The total value of manufactures for the whole country this same year was $60,713,000,000. About what fraction of that value was produced in the manufacturing Northeast?

C. Advantages for manufacturing

1. Power for manufacturing

We have seen that this region has labor and a

market in its dense population. It also has local power.

a. Coal

Examine statistics for coal production in and near this section. Study the coal fields in your text. Notice that all of the region has easy access to coal. New England has no coal. Are most of the large manufacturing cities of New England near the coast? Are harbors there ever ice-blocked? From what states can coal be sent a short distance to Chesapeake Bay ports and then shipped by water to New England ports?

Many large manufacturing districts have the advantage of being situated on coal fields.

b. Water power

Niagara is the chief power site of the area, but dams have been built on many rivers. A large dam is on the Susquehanna River and provides power for Philadelphia. New England factories began by depending wholly on water power; now they use coal in addition.

2. Transportation facilities

Cheap transportation is necessary to bring in raw materials and take finished products away.

a. Waterways

Water transportation is available to what sections of this area? Name the waterways (rivers, lakes, canals, bays and seas) available for use in this section. The Monongahela River is the busiest river. Why? The indentations on the coast provide many good harbors. Locate the large seaports on these harbors.

b. Railroads

Examine the railway map in your text and note how dense the network of railroads is in this section. What problems have railroad builders had to solve there? Consider the surface.

D. Types of manufacture

1. Iron and steel industry

a. Centers——Pittsburgh, Youngstown and Cleveland areas

b. Needs
Coal—high grade for coke for blast furnace; other coal for power and heat in steel mills
Iron ore—mainly from Minnesota and Michigan
Limestone—local

c. Smelting of iron ore in the blast furnace

d. Making steel in open hearth and Bessemer furnaces

e. The market for steel plates and bars and cable in machine factories, ship-building yards, locomotive works and automobile factories

2. Machinery
The advantages of being near the steel centers
The market for machinery, in textile mills, in coal mines, on farms, in fishing boats, and in shoe factories

3. Textiles
Cotton, woolen, silk, rayon, nylon
Search for the raw materials for each of these and locate the best known centers of manufacturing. Two of these textile industries depend wholly on raw materials brought from the outside. The two other textile industries obtain most of their raw material from outside. One gets all of its raw materials within the region.

4. Clothing
Often the finished products of one factory form the raw materials of another. This is particularly true in the case of ready-to-wear clothing. New York is the greatest ready-to-wear clothing center in the country. What two advantages has it?

5. Other manufactures
Examine manufactured things you see and advertisements in magazines to add to your list of manufactures from this section. Do not forget to add your shoes to the list.

E. Additional investigations

1. Make a report on the fishing industry of New England.
Someone might describe a trip on a cod-fishing boat to the "Banks" near Newfoundland, while another handles the shore fishing.

2. The oyster farms and fisheries of Chesapeake Bay are well worth investigating.
3. One of the greatest truck farming regions of the world lies in Delaware, New Jersey and Maryland. What advantages does the region offer to truck gardeners? In what do they specialize?
4. Even though dairying is one of the leading types of agriculture in the Northeast, large quantities of dairy products are brought in from distant regions. Where do they obtain butter? cheese? condensed milk? Fresh milk and cream come even from a foreign country. What country? How far is that country from New York City?
5. New York City should have some very special study.

   Secure a large map and point out and describe—

   a. The harbor and what one might expect to see in it. Look up the names of some of the large boats.
   b. The closely packed down-town section
   c. The Holland Tube and Washington Bridge
   d. Central Park

   Act as a guide on one of the small excursion boats which take tourists around Manhattan Island.
6. Find out something about summer resorts in New England. Would you choose a summer in the Maine woods, or on the Cape Cod seashore, or in the White Mountains?

II. Pioneering in the Northeast

A. Selecting a site for a colony

Consider that you have been sent out in charge of a shipload of emigrants to start a new colony somewhere on our east coast north of latitude 42 degrees North.

Make a list of about eight things you would investigate thoroughly before deciding on the exact location. For example: 1. water suitable for drinking. After you have satisfied yourself that your list is good, read all you can find on the Plymouth colony to decide if its leaders located wisely. Did they make a better choice than the Jamestown colony? Can you find some of the advantages the Boston settlement had? What advantages did Manhattan Island offer? Who were the

first comers there? Perhaps you are more interested in William Penn's town at Philadelphia.

B. A food supply for the colonists
   1. From farms
      The colonists bring certain crops and farm implements with them. They learn about corn from the Indians. New England offers more difficulties to farmers than New York and Pennsylvania. Why? (Note: Try to find a description of a New England farm and compare it with a Virginia plantation.)
   2. From the sea
      Fishing grounds in every little bay. A great variety of fish available.
   3. From the forest
      What animals suitable for food were there?

C. Shelter
   Houses and fuel from the forest. How were the houses built? The furniture also largely from the forest. (Perhaps if you find a description of the voyage across in the Mayflower or some other ship you will see how little furniture they brought with them.)

D. Something to sell in Europe
   1. The forests furnished things that England needed.
      Wood for shipbuilding in England. (Note the huge masts two or more feet in diameter at the base.)
      Naval stores for shipbuilding
      Potash for the woolen industry
      Bark for the leather tanneries
   2. The sea furnished
      a. Cod and other fish which were salted and sent to southern Europe or the West Indies
      b. Whale
         First along New England coasts—then farther away. Investigate the uses of whale oil, whale bone, spermaceti. Make sure that you know from what part of the whale each comes.

E. The beginning of manufacturing
   1. Home industry
      In the early days little manufacturing was done because England's laws were a hindrance. Gradually the colonists began to make at home, in small shops or yards at the mouths of little streams: clothing—wool cloth, felt hats from beaver fur, leather for shoes

ships—for use in their own fishing
household goods—blankets, carpets, furniture, trenchers, churns, farm tools of wood

2. Small factories at water power sites
When manufacturers began to use power they harnessed the falls in rivers. As manufacturing developed additional power in the form of coal was used.

F. Settlements spread across the mountains
For nearly a hundred years the English settlements stayed on the eastern side of the Appalachians. Suggest several reasons why that was so.
Later men began to move along the Mohawk Lowland. They also crossed the mountains in Pennsylvania where the river valleys offered a route.

G. Transportation problems
The advantages of being on the coast
Rivers of the northeast contain falls and therefore not navigable
Building the Erie Canal
Justify the route chosen.
What sort of boats used the canal?
In what ways was it a help ?
The first railroads

Note: Pupils might make special reports on the beginnings of such cities as Boston, New York, Philadelphia.

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Unit IX—Distant Lands of the United States

Major Geographic Understanding

The possessions of the United States are entirely different from any of the forty-eight states. Alaska, our largest possession, contains so much wasteland that very few people can make a living there. Alaska's far north location makes its winters so long and cold that farming is impossible except in a few small protected southern valleys. Although Alaska is very large, high latitudes and mountains forbid population increase. The fisheries and gold mines account for most of Alaska's business. In contrast to this large empty northern possession are the tropical garden spots—the Hawaiian Islands and Puerto Rico. In these small, mountainous islands the limited area of coastal lowland is packed with farmers. Intensive methods produce gigantic crops of sugar cane, which is milled on the plantations. This sugar is essential to the sugar bowls of the United States.

Investigations

I. Alaska

When the United States bought Alaska from Russia for $7,200,000 many people claimed we had made a mistake. What were the arguments for and against the purchase of Alaska? Which side do you take? We need to investigate the riches of Alaska and also the poverty side.

A. Area and quality of the land

How large is Alaska compared to Iowa? About how much was paid for Alaska land per acre? Was this a bargain? Compare that price with the two to five dollars that Iowa pioneers paid for Iowa land per acre. How good is Alaska land for agriculture? Consider the climate first. How much of Alaska lies too far north to raise crops? Look at the southern part of Alaska and see how much land is level enough to be farmed? There are only 500 farms in all of Alaska today and only 9,000 acres in crops. How many cropped acres would that average per farm? In an Iowa county there are between 100,000 and 200,000 acres cropped. How do Alaska's 9,000 acres compare? Alaska's first crop is hay, second potatoes, third oats. Why choose these crops? What do you decide about Alaska from the point of view of farming?

B. Mineral riches

List the minerals that Alaska has. Alaska's mines have produced about $500,000,000 of gold, but only $10,000,000 worth of coal, about $14,000,000 of silver, and $200,000,000 of copper.

C. Fisheries

Add the value of minerals together. Then compare with the value of fish which have been caught in Alaskan waters, $1,100,000,000. These figures are all calculated from the date of our purchase of Alaska up to a recent year.

Where are the most important fisheries of Alaska? What kind of fish? From your study of this kind of fish in the Pacific Northwest, can you figure out the best methods of catching them?

Investigate the following table to see how the Alaskan salmon canneries rank:

World pack of salmon	9,000,000 cases
Alaska	5,400,000
Washington, Oregon, and California	1,400,000
Siberia	1,000,000
British Columbia	700,000
Japan	500,000

D. Furs

The trappers and seal fishermen of Alaska have obtained about $125,000,000 worth of furs. Where are the fur-seal fisheries? What kinds of furs do the trappers obtain? Some trappers are in the forested sections, while others are on the tundra.

II. Puerto Rico and Hawaiian Islands

A. Tropical location

These islands lie in what latitude? Where are they with reference to the Tropic of Cancer? Is there any state in the Union where the people will see the sun overhead in June? Will the people of Puerto Rico and Hawaii see the sun overhead in June? A tropical location means perpetual summer. It is not any hotter in these islands than it is in Iowa in July and August, but it is hot all year around.

B. Sugar lands

Sugar cane thrives in hot weather and it does best where it can grow an entire year before it is cut. Do

you see why our island possessions produce much more cane sugar than Louisiana or Florida? The sugar cane is milled in the factories on the plantations. The raw sugar is shipped in bags to the U. S. where it is refined for our tables. Trace the route of sugar from Honolulu to San Francisco. Some comes to New York. Over what route?

Trace the route from San Juan to New York, Boston, Philadelphia, and Baltimore where refineries are located.

C. Winter resort lands

Why are these islands attracting Americans in the winter months?

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Unit X—Canada

Unit Objective

Canada is one of the larger countries of the world, but it has a small population. Most of its inhabitants live near the southern border, leaving the forest lands and tundras of the

north almost unoccupied except by a few hunters, trappers, and miners. The southern part of the forest belt has a flourishing lumber and paper-pulp industry. The fertile plains in the south central part are the home of the farmers who produce the country's greatest export. On lowlands along the river and lake highway in the southeastern part of the country is the most densely populated section. The great wealth of minerals and water power of this country are rapidly being developed and increased attention is being given to manufacturing.

Raising A Problem

Canada, a large country with few people

Compare Canada and the United States in size and in population. Why has Canada so few people for its great size? To try to solve such a large problem we need to make several investigations.

Investigation 1

In what part of Canada do most of the people live? Look at a population density map of North America. If such a map is not available, locate the cities of Canada and the railroads. The location of those two items will tell you where most of the people are.

Investigation 2

Why are most of the people of Canada living close to the northern boundary of the United States? Review the human-use regions of the northern part of the United States. How many of them continue across the boundary into Canada? Investigate the densely populated St. Lawrence Lowland and the Ontario peninsula with their waterways and their great amount of water power. Of what part of the manufacturing Northeast of U. S. does it remind you—New York and New England, or Pennsylvania and Ohio? The Upper Great Lakes district of United States continues into Canada. Find out about paper mills in Canada, and also see if you can find the location of the largest nickel mines in the world at Sudbury. West of Winnipeg is the wheat belt. Where is the wheat belt south of the boundary?

Will the Canadian wheat belt raise winter or spring wheat? The Canadian wheat belt uses the same waterway that the American wheat belt uses. Trace the water route that can be used in the summertime by both. Why

can this waterway not be used all winter? Why does little Canadian wheat go to Europe via Hudson Bay? Some of the Canadian wheat goes west to Vancouver, from which city wheat can be shipped by water all winter long. Why? Trace the route a ship loaded with wheat would take from Vancouver to Europe. The Pacific section of Canada reminds you of what section of the United States? Would you expect to find as many contented cows in Pacific Canada as in the Puget Sound lowlands? Why?

Investigation 3

What is the matter with the northern two thirds of Canada that few people wish to live there? Consider the forest belt and the tundra belt. Why can few people make a living in those areas?

Investigation 4

Co-operation of the United States and Canada on a transportation problem

The Alcan Highway

1. Location
   On an outline map of North America mark the route of this highway. It begins at Dawson Creek, which is a town at the end of the railroad running northwest from Edmonton about to the boundary line of British Columbia.
   From Dawson Creek, continue your line north to Ft. St. John (on the Peace River), to Ft. Nelson (on the Nelson River, which is a branch of the Mackenzie River), turn westward to Whitehorse, which is on a branch of the Yukon, continue on westward to Fairbanks, Alaska. From Fairbanks a railroad runs south to Seward. There is also a highway south from Fairbanks to the coast.
2. Airports along the highway
   Mark with crosses the airports at Grand Prairie, Alberta (not far east of Dawson Creek), at Ft. St. John, Ft. Nelson, Watson Lake, 280 miles northwest of Ft. Nelson, and Whitehorse.
3. Advantages of the Alcan Highway
   a. Location east of the Rocky Mountains gives protection from attacks from airplanes based on "flat-tops" (naval airplane carriers).

b. A land route for transportation of troops and war supplies to Alaska, an alternative to the sea route which may be harassed by submarines.
c. A road as a trace for our airmen to fly along. Food and shelter available along road for airmen who are forced down.
d. In peace times a scenic highway for tourists. A good article on the Alcan Highway is in the November 7, 1942, issue of the *Saturday Evening Post.*

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"EXPLORING THE MAP OF THE UNITED STATES"

A Drill in Map Reading

The following questions are not designed to introduce the children to the fundamentals of map reading. They are to be used after children have been taught how to read scale, network, and symbols on color-band physical-political maps. Whether this exercise is used for drill or for testing purposes, the child is to be given the following directions:

Open your textbook to the color-band map of the United States and find the answers to these questions. For some questions you may need to consult a larger map. In that case turn to the color-band map of the section of the United States. If you need to consult even a larger map, use a wall map of the United States.

1. What is the most southerly city in the U. S.?
2. In what state is the most northerly point in the U. S.?
3. To reach the most northerly point we would either have to cross a bit of Canada or take a boat across what lake?
4. What state extends the farthest west?
5. What state extends the farthest east?
6. Find five states that extend farther north than Maine?
7. There are three states that have no land higher than 500 feet above sea level. Name them.
8. There are four states which lie entirely above 2,000 feet. Can you find them?
9. Which state has more land above 10,000 feet than any other state?
10. What is the highest point in the 48 states? Name it.
11. How high is it?
12. In what state is it?
13. In what mountain range is it?
14. There are two valleys in the United States which are below sea level. They are in our second largest state. Name the state.
15. One of these low places is the Imperial Valley. What is the nearest river from which it obtains irrigation water? The lowest place is Death Valley, 276 feet below sea level.
16. Name the seven states each of which has at least half its land lying higher than 5,000 feet above sea level.

17. Name the six states which lie entirely below 1,000 feet.
18. What is the highest point east of the Mississippi River? Name it.
19. How high is it?
20. In what state is it?
21. In what mountain range is it?
22. The highest point in New York State is in what mountains?
23. The highest point in South Dakota is in what highlands?
24. What state is touched by only one other state in the Union?
25. What four states are partly separated from Canada by river?
26. What six states are wholly or partly separated from Canada by lake?
27. What is the largest freshwater lake in the U. S.?
28. What is the largest salt water lake in the U. S.?
29. Name seven states which send drainage waters into the Gulf of California.
30. From what four states do drainage waters reach both the Atlantic and the Pacific Oceans?
31. In what state is the source of the Mississippi River?
32. In what state is the mouth of the Mississippi River?
33. In what direction does the San Joaquin River (California) flow?
34. In what direction does the Niagara River flow?
35. What two states send some of their drainage water to Hudson Bay?
36. By way of what river?
37. What state is composed of two peninsulas?
38. What state has the largest island?
39. What state has the longest seacoast?
40. About how many miles?
41. What state has the second longest seacoast?
42. About how many miles?
43. What four states have no river, lake or sea boundaries?
44. What New England state has no seacoast?
45. Which city lies farther west, Carson City, Nevada, or Los Angeles?
46. Arrange these cities in order from north to south: New York, Miami, Baltimore, Boston, Washington, D. C., Philadelphia, Charleston, Norfolk, Savannah, Richmond.
47. Arrange these cities in order from west to east: Chicago,

New York, Salt Lake City, Omaha, Cleveland, San Francisco, Pittsburgh, Denver, Detroit.

48. In the town of Beaver there is a monument to its location "Half Way North." The town is approximately 3,000 miles from the equator and 3,000 miles from the North Pole. In how many states would such a monument be appropriate?
49. Name them.
50. The town of Beaver is well toward the center of one of the states whose initial is nearly at the end of the alphabet. In what state is this monument?

Answers

1. Key West; 2. Minnesota; 3. Lake of the Woods; 4. Washington; 5. Maine; 6. Washington, Idaho, Montana, North Dakota, Minnesota; 7. Louisiana, Florida, and Delaware; 8. New Mexico, Colorado, Wyoming, and Utah; 9. Colorado; 10. Mt. Whitney; 11. 14,500 feet; 12. California; 13. Sierra Nevadas; 14. California; 15. Colorado River; 16. New Mexico, Arizona, Colorado, Utah, Nevada, Wyoming, Idaho; 17. Louisiana, Mississippi, Florida, Delaware, New Jersey, Rhode Island; 18. Mt. Mitchell; 19. 6,711 feet; 20. North Carolina; 21. Appalachians; 22. Adirondacks; 23. Black Hills; 24. Maine; 25. Maine, New York, Minnesota, Michigan; 26. Minnesota, Wisconsin, Michigan, Ohio, Pennsylvania, New York; 27. Lake Superior; 28. Great Salt Lake; 29. Arizona, New Mexico, California, Nevada, Utah, Colorado, Wyoming; 30. Montana, Wyoming, Colorado, New Mexico; 31. Minnesota; 32. Louisiana; 33. Northwest; 34. North; 35. North Dakota, Minnesota; 36. Red River; 37. Michigan; 38. New York; 39. Florida; 40. 1,100 miles; 41. California; 42. 900 miles; 43. New Mexico, Colorado, Utah, Wyoming; 44. Vermont; 45. Boston, New York, Philadelphia, Baltimore, Washington, D. C., Richmond, Norfolk, Charleston, Savannah, Miami; 46. Carson City; 47. San Francisco, Salt Lake City, Denver, Omaha, Chicago, Detroit, Cleveland, Pittsburgh, New York; 48. Twelve; 49. Oregon, Idaho, Montana, Wyoming, South Dakota, Minnesota, Wisconsin, Michigan, New York, Vermont, New Hampshire, Maine; 50. Wisconsin.

Sample Test Items on the Geography of the United States

In preparation for this test each child is to make a copy of his Guide Map of the United States, showing the boundaries

of all the regions, omitting the sub-divisions and placing in each region a number according to the key map which the teacher will post on the bulletin board. With this map before him, the child will answer the questions by giving the number of the region.

A. The teacher reads the major understanding of a region omitting all place names and shortening it where possible. This appears as the "objective" at the beginning of each unit in the course. The child identifies the region by writing its number. Then the teacher reads the understanding of another region, and so on until all eight regions are identified.

B. Give the number of the region for each of the following cities:

1. Seattle	6. Duluth	11. St. Louis
2. New York	7. Boston	12. Indianapolis
3. Salt Lake City	8. Houston	13. Baltimore
4. Los Angeles	9. Pittsburgh	14. Philadelphia
5. Detroit	10. New Orleans	15. Miami

C. Give the number of the region which has—

1. the densest population
2. the sparsest population
3. the most waste land
4. the most rich land
5. the highest mountains
6. the most swamps
7. the largest acreage of pine forests
8. the largest acreage of giant trees
9. the most winter rain
10. the most summer rain
11. the longest growing season (throughout the entire region)
12. the most farm machinery
13. the most farm laborers
14. the most factories
15. the largest iron-ore mines

D. Give the number of the region which—

1. markets the most milk in cities
2. makes the most butter and cheese
3. catches the most salmon
4. catches the most tuna fish
5. catches the most codfish

6. raises the most grapes
7. cans the most fruit
8. makes the most automobiles
9. weaves the most woolen cloth
10. slaughters the most livestock
11. dries the most raisins
12. makes the most farm machinery
13. raises the most wheat
14. raises the most corn
15. picks the most cotton
16. pumps the most petroleum
17. mines the most coal
18. raises the most tobacco
19. produces the most cane sugar
20. makes the most movies
21. has many winter resorts but no mountain scenery
22. has many winter resorts and much mountain scenery
23. has summer resorts on lakes and in forests but no seacoast and no mountains.
24. has summer resorts in mountains but no seacoast
25. has summer resorts in mountains, on lakes, in forests, and on seacoast

E. Read this paragraph, then answer the questions about it:

"A cowboy is galloping across a pasture to see if the cattle are finding water in the little creek after the night's shower. The thin grass over which the pony travels barely hides the rocky soil. This season the grass is especially poor and a square mile will feed no more than 20 cattle for the year. In some years the same amount of land will support 60 head, and in the best years as many as 80. In the pasture there are occasional clumps of bushes but no trees. If the cowboy does not find water enough in the creek he will turn on the windmill. The ranch contains about 6,000 acres, yet only 50 acres are in crops. The pastures are in use the year around, although temperatures may drop a little below freezing several times during the winter. Dust storms roll across these plains and are a torment to both man and beast."

From information gained by reading the paragraph above, write the answer Yes or No to each of the questions 1 to 18.

1. Is this region humid? _____
2. Is this region semi-arid? _____
3. Is this region in high latitudes? _____
4. Could this region be north of Iowa? _____
5. Could this region be in Montana? _____
6. Could this region be in western Texas? _____
7. Might the average annual rainfall be 10 to 20 inches? _____
8. Might the average annual rainfall be 30 to 40 inches? _____
9. Might the average annual rainfall be 5 to 10 inches? _____
10. Are the winters cold? _____
11. Are the winters hot? _____
12. Are the winters mild? _____
13. Is the annual rainfall about the same each year? _____
14. Is the chief industry of the region crop growing? _____
15. Is the chief industry of the region grazing? _____
16. Is this a densely populated region? _____
17. Is this a moderately populated region? _____
18. Is this a sparsely populated region? _____
19. How many acres are required to feed one steer in poor years? _____
20. How many acres are required to feed one steer in the best years? _____

F. Identification of cities

Each paragraph describes one of these cities:

Philadelphia	New Orleans	Seattle
St. Louis	Chicago	Duluth
New York City	San Francisco	Detroit

Write the name of the city on the blank after each paragraph. Three of the cities are not described.

1. This great seaport is located at the mouth of a navigable river which flows into a bay. This city is a great manufacturing center, and while almost all kinds of things are made there, the making of clothing is the most important. _____

2. A port city has a fine natural harbor on a body of water which indents the coast deeply. This city is the chief outlet for an important logging region. It carries on a large trade with the Orient. _____
3. A lake port is the chief outlet for a mining region and an agricultural region. From it, large quantities of iron ore and wheat are shipped to market. _____
4. An important trading center is on the Mississippi River close to its junction with a large tributary. It is outstanding for meat packing and for the manufacture of boots and shoes. _____
5. An important railroad city is located on a large lake. Over the railroads come trainloads of livestock to the city's meat packing plants. Over the lake come boatloads of iron ore to the city's blast furnaces. _____
6. Ocean vessels ascend the river for about 100 miles in order to dock at this port. Its many miles of waterfront are lined with warehouses which contain cotton, lumber, sugar, rice, and molasses. _____

G. The eleven western states have less than one tenth of the farmers of the whole United States. What are the reasons for this? Write *Yes* after each item below which you believe is a reason, write *No* if you think it is not.

1. These states are less than one tenth the size of the United States. _____
2. There are large areas of swamps which cannot be drained. _____
3. There are large areas of deserts for which there is no irrigating water. _____
4. All this land lies too far north for farming. _____
5. There are large areas of steep slopes and much rock which cannot be farmed. _____
6. Much land is too high for crops. _____
7. The people in these states are so busy

manufacturing that they do not care to farm.

8. The flattish lands with fertile soil are covered with dense forests and would be hard to clear.

9. Only a sparse population can make a living herding livestock on desert and semi-arid range.

SECTION VI—GRADES SIX, SEVEN, EIGHT

Alternative Programs

After the development of map reading abilities and the understanding of the human-use regions of the United States in the fifth grade comes the study of foreign countries in grades six, seven, and part of eight. The order suggested in this course of study was conditioned by the fact that the only year provided for a study of history of Europe is the sixth grade. The seventh and eighth years are devoted to the U. S. history. However, if the correlation of European geography and history does not seem worth striving for, the other arrangements suggested would be feasible.

Every series of geography textbooks contains material on Europe, Asia, Africa, the Southwest Pacific, and Latin America. By using several texts, material suitable for different levels of reading ability is available. Most of the other topics in this outline are also handled by every series. References to non-textbooks are provided for each unit.

	Grade 6	Grade 7	Grade 8
Geography	Europe	Asia, Southwest Pacific, Africa, Latin America	Continuing Latin America Civics
History	Europe	United States	United States

Program A

Geography	Europe	Latin America	Asia, Southwest Pacific, Africa Civics
History	Europe	United States	United States

Program B

Geography	Latin America	Africa, Southwest Pacific Asia, part of Europe	Complete Europe Civics
History	Europe	United States	United States

Program C

Geography	Africa, Southwest Pacific Asia	Latin America Part of Europe	Complete Europe	Civics
History	Europe	United States	United States	

Program D

Units on Europe and the Eastern Mediterranean

I.	The Eastern Mediterranean: Egypt, Palestine, Mesopotamia	4 weeks
II.	Greece	4 weeks
III.	Italy	4 weeks
IV.	Spain and Portugal	2 weeks
V.	France	2 weeks
VI.	Scandinavian Peninsula, Denmark, and Finland	2 weeks
VII.	The Low Countries: Netherlands, Belgium	2 weeks
VIII.	The United Kingdom and Eire	6 weeks
IX.	Central Europe	4 weeks
X.	U. S. S. R.	4 weeks

General View

The major understandings which sixth grade units aim to develop might be called country personalities. Countries, like people, differ one from the other; the differences may be minor or they may be major, but they do exist. The better we become acquainted with people or with countries the more the differences become apparent.

There are various ways of knowing a person. We may know him through his profession, through social contacts, through church work, through welfare organizations, through our common hobbies. Through each one of these contacts we are aware of a different facet of his personality. Countries, like people, exhibit many sides; their art, their history, their music, their literature, their government, their geography.

To gain a real knowledge of any phase of a country one makes a systematic study of the data pertaining to that field. If the field be geography, one arrives at the understanding of the geographic individuality of a region or country through examination, classification, and analysis of geographic data.

When one has attained such an understanding of a country he sees clearly the bold outlines of how man is fitting himself, his work, his mode of living, his out-of-door recreation, into the natural landscape of that region. This country becomes an individual, not to be confused with any other country in the world. One separates it as he does an individual friend from a mass of many acquaintances, or from a group of absolute strangers.

In an endeavor to correlate history and geography the units have been arranged in the order best suited to the presentation of history. This has not called for any undue sacrifice in the geography program. The place where the sequence of units was of paramount importance was in grade five where the understandings of the human-use regions of the U. S. were acquired in order of difficulty, and to do this history sacrificed the chronological sequence.

Objectives

Understandings

1. The personalities of the countries of Europe; of the Mediterranean borders of Africa and Asia. The personalities are stated in the unit objectives. After the units on the countries have been worked out, the child should arrive at the continental understandings which follow.
2. Europe is inhabited by people of one race (with the exception of the small branch of Mongolians in Lapland), but of many nationalities. More than a score of distinct nationalities have emerged through thousands of years of settlement in a continent, the physical structure of which contributed to isolation. Many large peninsulas, several large islands, many mountain barriers separated groups of people throughout centuries when transportation and communication were slow and difficult. Even today, with modern means of communication, the language barriers continue to function and hinder business and mutual understandings.
3. Europe supports a denser population than any other continent (Europe 141 per square mile, Asia 67, N. A. 20, Africa 13, S. A. 12, Australia 2, Antarctica 0). Europe's overcrowded condition has resulted in the following:

a. Millions of its people have emigrated to other parts of the world. Europe might well be called the "Continent of Emigrants."
b. Its agriculture has been intensified in some countries to the point that yields per acre of the crops suitable to the climate are higher than anywhere in the world. This has been accomplished by the use of great quantities of fertilizer, much hand cultivation and the application of science to seed selection and control of plant disease and insect pest. Scientific methods have also been applied to breeding and care of livestock.
c. Even with its high development of agriculture, Europe is unable to feed her people and therefore depends upon the outside world for large quantities of food for man and feed for livestock.
d. To supplement its food supply, Europe has developed a great fishing industry. This has been possible because of the long coastline, sheltered harbors, and fishing banks nearby.
e. Europe supports a large per cent of its population by manufacturing. More manufacturing is carried on in Europe than in all the rest of the world put together. The manufacturing is based upon a wealth of mineral and forests resources and upon an abundance of power resources (coal and water power).

4. Europe is the world's greatest trader, carrying on more trade with other parts of the world than does any other continent. Large imports of foods and raw materials and large exports of manufactured goods characterize its trade. The long mileage of seacoast with many good harbors fronting on the Atlantic and the Mediterranean, the nearness to Africa and Asia, the abundance of materials for ship building, have stimulated Europeans to become great navigators and to build large merchant marines.
5. Europe is not able to raise as great a variety of crops as is the United States. Europe lies farther north than does most of the United States. The small part of Europe which does lie farther south

than Iowa is handicapped by a shortage of rainfall and by meager supplies of irrigation waters.

6. Nature has distributed her gifts unevenly throughout Europe. Some countries have great natural wealth, other countries have little. Some of the handicapped countries have met their problems in ways that all the world admires. For example: the Danes have developed a unique type of dairy farming in spite of their inheritance of poor land; the Italians without coal or iron have built a modern manufacturing system; the Dutch have turned swamps and even sea bottoms into gardens.
7. Two distinct centers of civilization developed completely out of contact with each other, one in the Mediterranean area the other in eastern Asia. The barriers of mountain and desert, seas, and great distances operated to keep them apart, thus allowing each to develop individually.
8. From the Mediterranean lands civilization spread into western Europe. From Europe we Americans have inherited customs, religion, language, laws, crops, inventions, farm practices.

Map Reading Abilities

1. Greater accuracy and speed in the map reading abilities gained in grade five
2. To read longitude
3. To apply longitude-reading in the calculation of sun time
4. To find unknown places on the map, when given latitude and longitude
5. To locate on an appropriate outline map—
   a. Each of the countries studied
   b. The national capital of each country studied
   c. The fifteen European cities of more than 1,000,000: London, Paris, Berlin, Moscow, Leningrad, Vienna, Hamburg, Budapest, Barcelona, Rome, Warsaw, Milan, Glasgow, Madrid, Birmingham
   d. Each of the following rivers: Rhone, Seine, Rhine, Po, Danube, Volga, Dnieper, Tigris, Euphrates, Nile
   e. Each of the following mountain ranges: Alps, Urals, Pyrenees, Apennines, Carpathians, Caucasus

6. To trace a map accurately (this does not mean freehand drawing)
7. To mark data on a traced map or on a printed outline map pertinent to the problem in hand. For example: on a map of the British Isles locate the coal fields, then add the large manufacturing cities, then read from the map the number of cities that are on coal fields versus the number that are not.
8. To express statistics graphically on an outline map. For example: show density of population by dots or by an overprint of colors or of various rulings.

Picture Reading Abilities

1. To check pictures of close-ups of individuals with street or farm scenes in which there are many people; to realize that special-purpose festival costumes are not the typical everyday dress of today
2. To sort pictures into three classes
   a. Man's work in its natural setting
   b. Man's work, with no clue as to natural setting
   c. Landscape, with no evidence of man or his work
3. To judge the quality of pictures, and thus be influenced in the selection of pictures for the bulletin board, or for presentation in a report to the class

Abilities in Use of Statistics and Graphs

1. To calculate population density per square mile
2. To calculate per acre yields
3. To make multiple-unit and bar graphs without having the scale prescribed by the teacher

Ability to Use Certain Technical and Semi-Technical Terms

longitude	meridian	export
standard time	marine climate	import
low latitudes	Mediterranean climate	natural environment
high latitudes	monsoon	mineral resources
middle latitudes	merchant marine	intensive agriculture
	tributary area	per acre yield

References

The geography and history textbook series contain material on each country discussed. Sixth grade pupils should be able to use an index in a textbook satisfactorily. Therefore, no references are given in this course of study to the textbook series. References are made to geographical and historical readers. *National Geographic* pictures have been indicated, and some stories for leisure time are named.

Note: The unit which is worked out in greater detail is that on "The United Kingdom."

Unit I—The Eastern Mediterranean: Egypt, Palestine, Mesopotamia

Unit Objective

The civilization which was passed on by Europe to us here in America had some of its earliest beginnings in eastern Mediterranean lands. There in arid and semi-arid regions lived peoples who more than five thousand years ago studied out clever ways of fitting their work to the ways of nature and kept written records to tell what they had done. These records tell us how the early Egyptians used the great oasis of the Nile and placed their dependence on the river as do their descendants today. They tell us also how the inhabitants of the Mesopotamian Valley built their great cities on the fertile lowlands along the Tigris-Euphrates and how among the low hills of Palestine where shepherds tended their flocks the religions of Judaism and Christianity began.

Outline of Content and Suggested Teaching Procedure

I. Egypt
   A. The Nile Valley one of the world's cradles of civilization.
      1. Nature furnished there suitable conditions for man's work and protection from invaders.
         a. Twelve frost-free months
         b. Floodplain and delta
         c. Rich soils spread each year by the floods of the Nile
         d. Irrigating water from the Nile, mainly through its floods
         e. A river suitable for transportation
         f. Deserts and seas surrounding the valley, protection against invasion

2. Men evolved century by century means of improving ways of living in the valley.

a. Improving farming

(1) Increasing the amount of land which could be used—at first sowing seeds on the water-soaked ground as soon as the floods receded; later using lands close to the river in the dry season by lifting water in buckets; still later building canals from the river which could hold water long after the floods subsided.

"These ancient Nile peasants were, therefore, watering their fields of grain and flax six thousand years ago."

(2) Introducing new crops and providing storage for crops

Make a list of crops and of livestock as you find them mentioned 3000 to 2000 B. C.

Read the story of the famine and Joseph's storage of grain. Genesis, Chap. 41. (The seven ears of grain would be wheat or barley—not our corn which was not grown in Egypt then.) If the rains in the mountains to the south were light, the floods might not reach out as far as usual. What danger then for farmers farthest from the river?

(3) Improving tools, for example: lengthen the handle of hoe, hitch oxen to it, make handles for guiding hoe; presto, a plow.

b. Improving buildings

(1) The sundried mud bricks were once the only building material.

(2) Later, brick of better type for homes of well-to-do and public buildings were made.

(3) Finally came the use of blocks of stone for tombs and pyramids. Take the great Pyramid of Gizeh as an example and investigate the following:

How far was the stone carried? (about 8 miles)

How large were the blocks? (2½ tons and the pyramid contained 2,300,000 blocks)

How were these blocks hauled?

How were they raised into place?

After you have found a picture of the pyramid lay off on your school yard a base for it. Each side was 755 feet long at the base. (Men discovered copper ore over in Sinai a thousand years before the pyramids were built and accidentally learned how to smelt it. Later they secured tin from other sources and made bronze knives and saws. These they used in cutting stone.)

c. Scientific achievements

(1) Measuring time

Like other early people Egyptians measured from new moon to new moon. What objection could you see to this? Later they decided on twelve months all the same length and a holiday five days long at the end of the year.

"This calendar of 365 days was introduced in 4241 B. C., the earliest fixed date in the history of the world as known to us."

Breasted: *A History of the Ancient Egyptians.*

This year began on the day that the star Sirius first appeared on the eastern horizon at sunrise. In our calendar this would be July 19. Look back to what you know of the time of the Nile floods and see why this would be a good time to begin a new year. They still needed a way of counting the year. Sometimes they counted from some disaster —as for example "ten years after the bad Nile" (probably a famine year). Later they counted according to the reign of a king. How did our present system of reckoning years originate? See if you can find out what B. C. and A. D. mean?

(2) Developing a system of records

Look at pictures of the walls of tombs or pyramids to see the wonderful records that were made by drawing and painting. Study these records to see what you can tell from these paintings and drawings. Later the Egyptians shortened the process of making records by using symbols. Still later they developed an alphabet. An authority

(Breasted) says that it has been discovered that true alphabetic letters were used in Egypt 2500 years before their use by any other people.
Find out how paper was made from papyrus. How did they make ink?

(3) Studying astronomy
Why would Egypt be an especially good country in which to make studies of the movements of heavenly bodies? If Egyptians knew something of the position of the stars, would it help them in judging when to prepare for the flood period?

(4) Developing geometry and surveying
When a coat of Nile mud was laid over a field by the floods, how would a man know where his boundary lines were?

d. Transportation developments
Compare the first Nile boats with the luxurious, many-sailed boats of the time of the Pharaohs. Compare the pictures you find of early donkey or oxcarts with Pharaohs' chariots. (Horses were evidently introduced to Egypt from Arabia.)

(Note to teacher: It might be well to call attention to the fact that Egypt since the time of the Pharaohs has been under the rule of many different nations: Persians, Greeks led by Alexander the Great who founded Alexandria, Romans, Arabs, Turks, British. Egypt is independent today. Emphasize the importance of the Suez Canal to the trading nations.

B. Present-day Egypt

1. Population problems
The greatest problem of Egypt today is to raise food enough for a large population crowded upon a small area of land.

Total area of Egypt	386,000 square miles
Occupied area	13,600 square miles
Total population	15,944,000
Nomads	40,000

What is the population density of the settled land? Compare this with the population density of Iowa. What is the population density of the land over which the nomads roam?
Why is there such uneven distribution of people?

How do so many people make a living on so little land?

2. Investigations into land use
   a. Where is the occupied land?
   b. What advantages does it offer over the rest of Egypt?
      Investigate rainfall, temperature, soil, minerals, water supply of the settled region vs. the area over which the nomads roam.
   c. Where does the Nile get the water it brings to the desert? Investigate the sources of the Nile (the White Nile and the Blue Nile). Investigate the rainfall map of Africa. What is the relation of Ethiopia to the floods of the Nile? Ethiopia has heavy rain from June through September, the rest of the year is dry. When does the water in the Nile reach its greatest height?
   d. The Egyptians today irrigate much more land and get more crops per acre than in the days of the Pharaohs. How have they succeeded in controlling the flood waters?
   e. How do the Egyptians use the land?

Land used by the farmers	
Cropped land	5,600,000 acres
80 per cent is irrigated all year	
20 per cent is irrigated part of the year	
(8,850,000 acres of crops, how possible?)	
Pasture and fallow	2,300,000
Land occupied by canals, roads, buildings	800,000
Total area of occupied land	8,700,000
Unoccupied land	238,300,000

   f. What are the chief crops and how are they raised?

Cotton	1,872,000 acres
Clover	1,862,000
Maize	1,572,000
Wheat	1,485,000
Beans, peas, and lentils	597,000
Rice	500,000

g. Which of these crops go to world markets? Look up Egypt's exports in *Foreign Commerce Yearbook.*
h. What Egyptian crop does the Imperial Valley, California grow? Why? Compare the Imperial Valley oasis with the Egyptian oasis as to size, source of water, and number of people.

II. Palestine

Approach

Our Christmas stories always center around the Holy Land. We sing "O! Little Town of Bethlehem," "While Shepherds Watched Their Flocks by Night," "Away in a Manger," and many other songs which take us to scenes in Palestine. An investigation of what people did there to make a living thousands of years ago and what they do today might make the land seem more real to us.

Outline of Content

A. Palestine sees peoples come and go through the centuries.
1. Early shepherds
Abraham bringing his family and flocks on the long trek from Mesopotamia to the "Promised Land"; Abraham and Lot dividing the pastures; Isaac, the big stockman, having trouble with the native people over a water supply for the flocks; Joseph taking messages to his shepherd brothers from Jacob, their father. (Read these stories in the Bible, or in one of the books of Bible stories or in your history textbook.)
2. The famine in Palestine which drives Jacob's family to Egypt
Their slavery in Egypt and final return to Canaan under the leadership of Moses
3. Famous kings who ruled the Hebrew people and waged war on the native Canaanites
a. Saul
b. David
Note the change from the shepherd boy to the king who captures Jerusalem.
c. Solomon
Find out where Solomon secured the materials to build the temple.

4. Palestine, the scene of many wars
   Notice its location on a great highway from Mesopotamia to Egypt. Recall the story of the traders who carried Joseph to Egypt.
5. Palestine in the days of Christ
   Notice how the teachings of Jesus take illustrations from the life of shepherds, of husbandmen, and of fishermen.
   Shepherds on hillsides
      Think of examples in Bible stories
   Farmers in the valleys and on terraced hillsides
      List all the crops you have noticed mentioned in the Bible.
      Remember that barley and wheat were called corn there.
   Fishermen on the Sea of Galilee
      Do you recall the names of some famous Bible characters who were fishermen?
6. The Crusades to recapture Jerusalem
   In the 11th century the Mohammedans who had gained control in Palestine closed Jerusalem to Christians and many crusades were made to regain it. You may be able to find accounts of some of them. For centuries there has been trouble in Palestine between Jews and Arabs.

B. Palestine in the 1940's

1. Shepherds and farmers of hillsides and desert
   a. Grazing on steeper, drier hillsides and in the desert
      Today
      Palestine feeds 440,000 goats 250,000 sheep
      150,000 cattle 25,000 camels
      Rainfall grows less toward south and east, 24 to 30 inches in the north, 5 inches in the south and in the hot southern Jordan Valley. How would this affect the distribution of the stock throughout the country? In Bible times you gain the idea that wild animals were feared by the shepherds. Are they feared today?
   b. Farming on hillsides
      Necessary because Palestine is a small country and a million and a half people must be fed. Trace a small outline map of Iowa and on it

color enough area to represent Palestine. (8,880 square miles—one sixth of Iowa)
Crops of wheat, barley, olives and almonds where land is used without terracing
Where irrigating water can be found and terraces built intensive cropping of vegetables and fruits

2. Farming in the garden spots of the coastal plain
   a. Grain crops—without irrigation
      Wheat and barley sown in fall to take advantage of the winter rain. Compare with California practices.
      Using data below, make a chart of rainfall and compare with a chart for Los Angeles

	Jaffa (ancient Joppa)	Jerusalem	Los Angeles
Jan.	5.0 inches	6.3 inches	3.06 inches
Feb.	3.5	4.6	2.97
Mar.	2.3	3.5	2.78
Apr.	0.3	1.5	1.03
May	0.1	0.3	0.45
June	0.0	0.0	0.07
July	0.0	0.0	0.01
Aug.	0.0	0.0	0.03
Sept.	0.2	0.2	0.16
Oct.	0.8	0.8	0.65
Nov.	3.0	3.0	1.18
Dec.	4.0	4.0	2.56
Year	19.7	24.8	14.95

      In which month would it be wise to sow wheat in order to have the benefit of winter rain?
      A prophet (Samuel I 12:16-17.) once said: "Is it not wheat harvest today? I will call upon the Lord and he will send thunder and rain that you may perceive and see that your wickedness is great." Would rain at harvest time be something unheard of?
   b. Irrigated crops
      (1) Fruits and vegetables which require irrigation only in summer
          List all you can find grown there and compare with those you remember in California.

(2) Citrus fruits which may need irrigating all year

Palestine is today the world's second largest exporter of oranges. (See data given under outline on Spain.)

Citrus fruits make up 80 per cent of Palestine's exports. Haifa and Jaffa are the ports through which oranges leave.

C. Investigations into both past and present

1. We read in the Bible of Joseph and Mary with Jesus making the trip on foot from Nazareth to Jerusalem. How far is it?
2. Wheat ripens in April in the northern part of the Jordan Valley (the Ghor). This is five or six weeks earlier than on the nearby plateau. Suggest reasons.
3. Look up in the Bible, Song of Solomon 2:11-13 to see if the verses would agree with the data given here on rainfall.
4. Explain why the Christmas story of Santa Claus could not possibly have originated in Palestine.
5. Write a paragraph telling why it was very natural that the Three Wise Men came on camels to visit the Christ Child. (Examine the rainfall map.)
6. When Solomon built the temple he had to buy timber from the country to the north (Cedars of Lebanon). Why not cut it in Palestine?
7. On a map of Asia in your textbook, work out the route of the pipeline which carries oil from Iraq oil fields to Haifa. The line starts 90 miles southeast of Mosul, crosses the Tigris river about 150 miles northeast of Bagdad, crosses the Syrian Desert, passing about 70 miles south of Damascus, thence on the south shore of the Sea of Galilee to the coast.

III. Mesopotamia

Lack of space forbids the inclusion of material on Mesopotamia which might be handled in somewhat the same way that Egypt has been.

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Sample Test Items on Present-Day Egypt

1. Why is the Nile called the "life-line" of Egypt?
2. Why would Little Egypt be a good name for the Imperial Valley of California?
3. Mark *NV* all the items listed below which pertain to the Nile Valley.
   Mark *IV* all the items below which pertain to the Imperial Valley.
   Mark *Both* all the items listed below which pertain to both valleys.
   Mark *O* all the items listed below which pertain to neither valley.

_____ All crops are grown under irrigation.
_____ The irrigating water comes from the Mediterranean Sea.
_____ The irrigating water comes from mountains far to the north.
_____ The flood waters come in the spring from the melting snows in the mountains.
_____ The flood waters come in the summer from heavy rains in the mountains.
_____ There is no frost, so crops can be grown in winter as well as summer.
_____ The summer is terrifically hot.
_____ The winter is delightfully warm.
_____ The oasis is the home of millions of people.
_____ The flood waters are stored behind a series of dams.

_____ The oasis lies between 40 and 50 degrees north.
_____ The oasis lies between 32 and 34 degrees north.
_____ The houses are built of adobe and have flat roofs.
_____ An important crop is Egyptian cotton.
_____ There are date gardens.
_____ The oasis is the largest one in the world.
_____ Less than ten inches of rain falls per year.
_____ Large crops of winter head lettuce are shipped out by rail.
_____ The oasis extends from 15 degrees to about 30 degrees north.

Unit II—Greece

Unit Objective

Greece, another eastern Mediterranean land is a small mountainous country made up chiefly of islands and peninsulas. The deeply indented coast line and the off-shore islands early invited men to become fishermen and sailors. Its scattered valley bottoms furnish a limited amount of crop land, but its mild winters and dry hot summers allow a wide variety of crops in locations where irrigating waters are available. Its mountain slopes have from the earliest days been the homes of shepherds who tend flocks of sheep and goats. Greece contributed much to the arts of building, sculpture, oratory, drama. Most especially do we owe to her the idea of self-government which is cherished in the democracies today.

Outline of Content

I. In days gone by
   A. We learn of earliest Greece through her myths and legends.
      1. The Greeks explained many of nature's workings through the activities of their gods and goddesses. Three of these who dwelt in spendor among the clouds of Mt. Olympus we should know something about for several reasons. They help us to understand the Greeks, they are often referred to by authors today, and they are very interesting per-

sonages. Make sure that you can recognize their pictures as well as their acts.

Zeus, the sky-god with lightning in his hand

Apollo, the sun-god whose beams were golden arrows

Athena, the goddess of wisdom who protected Athens

2. Legends were told from one generation to another by word of mouth for hundreds of years before they finally were written down. Some of them you may read in the words of the blind poet, Homer. Suppose you choose one of these legends to become so thoroughly acquainted with, that you can tell the story to your class or help them dramatize it or make a frieze for your art work. Among the legends you will be sure to find:

Jason and his Search for the Golden Fleece

The Twelve Labors of Heracles

The War with Troy

What do men mean today when they say a place has been captured by means of a "wooden horse"?

B. Many separate little states develop in Greece

1. The surface of Greece helped to divide groups.
Look carefully at the map of Greece to see if you can see good reasons why many separate little city-states developed. What besides mountains divided the country? Look at the length of the Gulf of Corinth.

2. The city-states develop into democracies
Try to find out how these little states change from the rule of kings to the rule of the people themselves. Search for evidences that they loved their cities and that boys were taught to be real "citizens."

3. Athens
Make a comparison between the things Athens held most worth while and those Sparta valued. Find out something of the life of the people, their homes, their work.
Athenians made their city beautiful. In what ways?

4. Sparta
What things did boys of Sparta learn to do?

Once when a stranger asked why Sparta had no wall around it as other Greek cities did a citizen replied, "Every Spartan is a brick in the wall of Sparta." Just what did he mean?

5. The Olympic Games

The cities might quarrel among themselves but they united every four years for the games in honor of the gods. In what sort of events did they contend? What was the prize given a winner? When you read all you can about the games try writing a description of a day there and one at the Olympic games held at Los Angeles in 1932. Athletes from 39 countries took part in Los Angeles. In 1936 the Olympics were held in Berlin and a torch was lighted in Olympia, Greece, and carried in 11 days by relay runners 2,000 miles to light the torch in the Berlin Stadium.

C. Greece develops sailors

1. A training ground

In early days, when men were first venturing out to sea along the coasts of the Mediterranean some peoples became great sailors, others did not. What sorts of boats might have been used for these first ventures? Compare the shores of Palestine and Greece on the largest maps of each that you can find. Which country could offer the best training ground for sailors? Have you any proof that one of those countries did train sailors and the other did not?

2. Boats became very complicated and ornate

Try to find pictures of some of the earliest boats and compare them with pictures of the ships which were used when the Greeks fought the Persians in the battle of Salamis in 480 B. C. Your history text will have pictures.

3. Greek boats carried colonists afar

Because there was so little fertile land in the peninsulas and nearby islands the city states began establishing colonies. Another reason for colonizing was that many Greeks were fond of adventure. Colonies were established along the shores of the Black Sea. It was not difficult to sail from western Greece to the heel of Italy. How far? The Greeks even established a colony at Massilia near the

mouth of the Rhone. It has grown to be the second largest city in France today so they must have chosen a location wisely. What city? How far did Alexander the Great extend Grecian territory?

4. Greek traders and travelers
   One would expect the Greeks to carry on much trade. A writer says this of the country between 663 and 609 B. C.

   > "Greek merchants bought wheat and papyrus from Egypt for sale in Greece; they supplied olive oil and wine as well as pottery for Egyptian trade. They took home with them a spirit of historical inquiry aroused by the antiquity of Egypt and its monumental record of the past and they gained from the Egyptians a better understanding of practical science."

   Of course as time went on Greeks carried much in the way of art and learning to other countries around the Mediterranean. Can you find something about the wonderful university they founded in Egypt?
5. Famous Greeks
   Would you rather have been Phidippides, Socrates, Demosthenes, Plato or Herodotus?

II. A look at Greece today

A. Greece today, as she has been for many, many years, is very densely populated for the small amount of crop land she has. The country is almost the size of Iowa, yet she has only 6,000,000 acres fit for crops. She must find something to sell in order to pay for more grain and the manufactured goods she needs. Greece's largest export is tobacco, and the United States buys each year from one fourth to one third of all she has to sell. How do you explain this in view of the fact that the United States is the world's chief tobacco exporter?

Your mothers may buy, at Christmas time, packages of a dried fruit called "English currants," not because they come from England but because England uses large quantities. They look like small black raisins and are Greece's second largest export. They are really dried grapes, and the name currant is a corruption of the name Corinth. Where is Corinth?

What special advantage would Greece have for growing and drying such a crop? This work reminds you of that done in what section of California ?

B. If you were visiting Greece now, which of the famous old buildings would you wish to see?

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Unit III—Italy

Unit Objective

Present-day Italy is a densely populated country which has terraced mountain slopes, drained swamps, and irrigated dry sections in order to produce food for a constantly increasing population. The rich soil of the flattish Po Valley with its more abundant rain and its many streams for irrigation is cultivated like a garden. The smaller areas of lowland in the peninsula have to meet the problem of summer drought and

limited amounts of irrigating water. To compensate for the lack of coal Italy has harnessed all of its water power and carries on a successful manufacturing industry, largely on imported raw materials. Famous historical cities, beautiful scenery, and mild winters attract visitors and help many Italians to gain a living.

Italy has contributed much to the world since the days when from Rome as a center it began to build a mighty empire long before the beginning of the Christian Era. Romans began carrying on commerce with distant lands by sea and spreading a network of roads over the lands which they had conquered. The laws which they developed have been a foundation for legal codes ever since. Through many years the empire was built and through many more it fell to pieces. Italy as we know it today was formed from a group of Italian states.

I. Present-day Italy

Approach

Italy supports a population of 368 to the square mile, yet less than half of her land is fit for crops. She buys additional amounts of certain foods but more than pays for them by specialty crops which her climate permits her to raise. Her sale of manufactured goods pays for the large amount of raw materials which she must import.

Outline of Content

A. The Po Valley, the staple crop producer and the manufacturer

1. Crop growing possibilities

The plain produced 100% of Italy's rice
85% " " silk cocoons
70% " " corn
45% " " wine
40% " " wheat

Investigate the following to see if you can account for the productiveness of the valley:

a. Amount of lowland as compared with that in the peninsula. Use your color-band maps.
b. Rich soils. Note description in text. In ages past the soils of the Po Valley were washed down from the mountain sides.

c. Rainfall. Notice that the Po Valley has much more of its rain in summer than Peninsular Italy has.
d. Frost free season and summer temperatures much like those of northern Arkansas.
e. Plenty of irrigating water, chiefly needed for rice.
The land is closely packed with crops, some of it is even cropped twice a year, a winter crop and a summer crop, and irrigation may be used to supplement rain.
f. Use of every available foot of land
Rough land growing mulberry trees for silk-worm feed
Planting grape vines amongst other crops
Terracing the slopes around the valley
Growing chestnut trees on steeper slopes above valley
How are chestnuts used in Italy and Spain?

B. Advantages for manufacturing
1. Water power
a. Developed water power
Leading users of water power

(1)	United States	17.1 million horsepower
(2)	Canada	7.9
(3)	Italy	6.0
(4)	France	5.2
(5)	Japan	4.5
(6)	Norway	2.9
(7)	Switzerland	2.8

b. Advantages which the Alps present for water power
Investigate color-band map and a rainfall map. Read to find if Alps are snow capped.
2. Transportation
a. Railway network in valley
b. Connections with rest of Europe through passes and tunnels
Investigate each of these and tell what trips you would be taking if you used them: St. Gotthard Tunnell, Mt. Cenis Tunnel, St. Bernard Pass, Simplon Tunnel.
c. Ports through which raw materials come and many commodities leave

Genoa—notice advantages for serving Milan and Turin
Venice—serving the lower end of the valley

3. Manufacturing centers
   Milan
   Turin

B. Peninsular Italy—a little California
   1. Agricultural handicaps and advantages
      a. Rough, steep lands with no possibilities for irrigation; must choose drought-resistant crops to meet summer dryness
         (1) The olive
             Note special characteristics which enable it to withstand drought.
             Olives can stand a little frost and can be grown almost anywhere in the peninsula except in higher altitudes.
             The olive has been called "the cow of Mediterranean Europe." Why? What oils compete with olive oils here in U. S.?
         (2) Wheat
             Fall sowing is even more necessary here than in the Po Valley. Why?
             The wheat of the peninsula is harder than that of the Po Valley. Why?
             Italians are large wheat eaters. In what forms?
         (3) A long frost-free season
             Almost twelve months, is the peninsula's greatest advantage. Where there is irrigating water and level land or land made level by terracing, specialty crops bring the best returns.
             (a) Citrus fruits
                 In most sheltered, nearly frost-free areas, from Naples south along the west coast, and all around Sicily. The island is better fitted for lemons than the peninsula. Why?
             (b) A great variety of deciduous fruits including grapes which grow throughout Italy
             (c) Vegetables, summer crop under irrigation, winter crops without irrigation

b. Other advantages of the peninsula and islands
   (1) The fine harbor of Naples
   (2) The historic city of Rome, draws thousands of visitors
   (3) Cararra marble, furnishes material for export.
   (4) Sulphur from Sicily. Italy, including Sicily, stands next to the United States as a sulphur producer.

Other Investigations

1. What special advantages has Italy for building beautiful cathedrals? Which three cathedrals would you consider good examples? Where is each, and what would you say were its special claims to beauty? Fortify your arguments with pictures.
2. The statement was made long ago: "Rome from her seven hills rules the world." Were there actually seven hills? Was the Tiber River any asset to Rome?
3. Through the Pontine Marshes which Italy has been draining in recent years, there used to run a famous road. Why was it built and why so expensive? What became of it?
4. Find pictures showing the water streets of Venice. Write a letter to a friend explaining how you were taken from the railroad station in Venice to your hotel. Why does Venice have a network of canals? Upon what kind of land was Venice built?
5. The Vatican State is called the smallest state in the world. How large is it? Make a list of the things one could see in it.

II. Rome, the City-State That Later Ruled All Italy

A. The beginnings of Rome
   1. The legend by which its early citizens explained its origin—the story of Romulus and Remus
   2. The probable beginning when little villages on the hills united to form a stronghold
      Try to find the names of the hills.
      How far up the Tiber were they? On which side?
      What would be the advantages of living at the only bridge across the river?
      Read the story of "Horatius at the Bridge" to see

if it gives some idea of the loyalty of Romans to their city.

B. Rome overthrows the rule of kings and becomes a republic

1. The people elect representatives to manage their government.
   Do you find the words "senate" and "tribunal" in your history text? Could it be that the Roman republic furnished suggestions to the founders of our republic?
   Read the story of Cincinnatus.
2. The Romans learned much from the Greeks.
   Investigate shipbuilding, Greek words, the use of money.
   They compared their gods with those of the Greeks and found many likenesses. Can you make some such comparisons? The Greek god Zeus would compare with which Roman god?
   The little republic sets out to conquer other tribes and soon becomes mistress of all Italy.

C. Rome grows to a mighty empire.

1. The senate waged war on many countries.
   Have you read the story of Hannibal from Carthage, who sought to conquer Italy by taking a long roundabout route across the Alps? Through what countries did he travel?
2. Under the ruler, Julius Caesar, more territory was added and under his successor, Augustus Caesar, it was better organized.
3. Find a map showing the areas Romans added to their empire.
   Was Palestine ever a part of it? Can you find anything to show that it was a part during the life life of Jesus? Read Luke II:1. When you read travel stories of Great Britain you may find mention of Roman walls and baths and roads. Did the Romans include part of that island in their empire?
4. Some of the things which we admired most in the early Romans disappeared as they grew wealthy. In early days there was no very wealthy class and no very poor class. All lived simple lives. In these later days the wealthy had their work done by slaves.

Who were the slaves? It is said that the coast opposite eastern Italy yielded one hundred thousand slaves. How were slaves treated?

Many Romans now lived very luxuriously.

"Not long before the Carthaginian wars an ex-consul had been fined for having more than ten pounds weight of silverware in his home. A generation later a wealthy Roman was using in his home silverware which weighed some ten thousand pounds."—Breasted.

It is said that one Roman conqueror brought home to Rome two hundred fifty wagon loads of Greek statues and paintings.

Your texts may give you accounts of their luxurious homes and food. Are you convinced that they must have carried on commerce with many countries? Explain.

Their sports and amusements were often cruel.

Find some amusements and sports often practiced that seem to demonstrate this.

5. On the other hand Romans contributed many fine things to the world. They built wonderful aqueducts—parts of some of them stand today.

   Can you suggest reasons why aqueducts might be badly needed in Italy and other countries around the Mediterranean Sea.

Roman roads were excellent. Many of them were built for a special purpose. What?

The Romans introduced law into many of the countries they conquered.

They carried Greek learning into many countries.

Julius Caesar introduced into Europe the Egyptian calendar.

Do you find any indication of changes made in it?

Do you have in your vocabulary any words of Latin origin?

Did the Romans, like the Greeks, build beautiful buildings?

Find other contributions.

D. The Roman Empire lost its power

1. The great Empire began to have troubles.

   Can you suggest the causes of some of its difficulties at home?

2. It is attacked from outside by powerful foes.

E. Later years in Italy

1. Venice and Genoa became great commercial cities of the Mediterranean between 1200 and 1600.
   Read the story of Marco Polo and the information he brought to Venice in the 13th century.
   The ships which Venice sent to Egypt, Syria, Constantinople brought back goods which had come from India, East Indies, and China. How did they travel from those countries to the ports? Where did Venice sell the goods?
2. Our debt to Italian art
   Much beauty was added to the world by Italian artists and builders.
   Find out all you can about St. Peters which was begun about 1510 and completed late in the century by Michelangelo and one of his pupils. Our national capitol and several state capitols have copied its famous dome. You can find pictures of some of the works of Michelangelo. Which are his most famous?

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Unit IV—Spain and Portugal

Unit Objective

The early history of the Americas is closely tied with the explorations which Spain and Portugal carried on in the fifteenth and sixteenth centuries. Both countries, after they had driven out the Moors, sent daring sailors in search of land and commerce and for a long time owned colonies in the Americas, in Africa, and in the Pacific. Today they have but small share in world trade and possess but little land outside of the Iberian Peninsula.

Spain is one of the larger countries of Europe but both it and Portugal are so cut off from the rest of Europe by the Pyrenees Mountains that their peninsula seems like a little continent in itself. Most of Spain is a rough, semi-arid, sparsely populated plateau. There, people graze sheep and goats on the rougher lands, and on the less rough land raise poor crops of wheat by dry-farming methods. Deep valleys, mountain ridges, and poor roads keep the various sections of the plateau from being closely united. Around the eastern and southern edges of the country are densely populated lowlands. Mild winters and irrigating waters from the mountains behind them enable the many farmers to raise fruits and vegetables for sale in other parts of Spain and in foreign lands. A few especially sheltered lowlands have made it possible for Spain to become the world's chief orange exporter. Other lowlands and hillsides in the south have furnished opportunity for the development of the world's greatest olive crop. Northwestern Spain differs from other sections in having abundant rain. Farmers in that section raise corn. The northwest has good fishing grounds along its indented coast. Once a well known exporter of minerals, Spain is now a minor factor in the world's mineral supply. Its chief contributions to the markets of the world are now oranges, olive oil, nuts, and wine.

I. Investigations into the Past

Great Spanish and Portuguese explorations in the age of discovery

We think of the Greeks and Romans as daring explorers, and they were, but they stayed mainly within their own seas. If we wish to know real explorers who ventured far out on the ocean we should investigate the Portuguese and the Spanish.

A. The Portuguese find their way to India by sailing around Africa

1. Prince Henry the Navigator sends out his ships

He was interested in navigation and also in the products which might be obtained on the west coast of Africa, and about 1421 sent out his first ships to explore the west coast of Africa. Year after year ships sailed from Portugal. After exploring a short stretch of new coast they would return home.

Make a list of the things sailors feared in those days. Suppose one believed the earth was flat? Were there any maps to guide ship captains? How did ships carry food and water in those days?

By 1433 Prince Henry's ships reached Cape Bojador (27 degrees North). Approximately how many miles of coast had they explored?

2. After Prince Henry's death other kings kept on exploring the coast. By 1460 they passed the mouth of the Congo. How many years of exploring were involved? In 1486 they rounded Cape Horn. In 1497 the Portuguese captain sailed north along the east coast of Africa and struck out across the Indian ocean to the west coast of India. The voyage was very profitable. When all of their arrangements were made they began loading spices in their ships:

"All day they loaded pepper." Pepper had to go below the other goods so they continued loading it the second day. The king "ordered that ginger should be given the next day." The ginger came all smeared with red clay. The clay was needed to make it travel well. "But the clay was so much in excess that it weighed more than the ginger which was a great robbery of the Portuguese." They weighed ginger for three days. Then they

began taking on cinnamon. Loading of spices went on for days and in addition precious stones and fine silks and perfumes and porcelain were purchased.

3. For half a century Lisbon was the spice market of the world.
   Why were spices regarded so much more highly in those days than they are today? As Portugal did this exploring and trading it established a number of colonies. Do you find any of them on your maps? In the past few years we have heard a good deal about Lisbon. Why?

B. The Spaniards began exploring and colonizing a little later than the Portuguese.

1. At the time Portugal began exploring the coast of Africa, Spain was spending most of her energy driving out the Moors. From where had the Moors come into Spain? Can you point out some fine things they did for Spain? (Note: Find a description of the Alhambra.)
2. Columbus in 1492 succeeded in getting Ferdinand and Isabella to help finance his plan and set out on his voyage to reach the lands of spices by sailing west.
   What must he have believed the shape of the earth to be if he were willing to attempt such a voyage? Were there men before Columbus who believed that the earth was round?
   When Columbus went as far south as the Canary Islands, what wind belt was he in? How did this help him?
   Find in your history text a map showing his route. What interrupted his plan to sail west to China and the Indies?
   Notice that on his voyage back to Spain he sailed north before sailing east. Would that in any way increase his speed?
3. Spain planted many colonies in the Americas and in the Pacific.
   When you study United States history in the seventh and eighth grades you will find what those colonies were and how she gradually lost them. Which Spaniard first climbed the mountains of the Isthmus of Panama and saw the Pacific Ocean?

An expedition of five Spanish ships under a Portuguese captain set out across the Atlantic, around South America, across the Pacific. The Portuguese leader was killed in the Philippines and four ships were lost, but one ship and about thirty men got back to Spain after terrible experiences. Who was the Portuguese leader?

II. Investigations into the Present

Barcelona is farther north than Madrid, yet Madrid's winters are several degrees colder. Use your maps and give reasons why that might be expected.

Why call Madrid "an oasis in a semi-arid land"?

Thousands of Spaniards make a living by grazing flocks of sheep and goats. Find descriptions of the regions where grazing is carried on. The Mediterranean regions of Europe graze millions of goats. Why do they graze more goats than cattle or even sheep?

Make a list of the many advantages which farmers living in the Valencia region of Spain would have over those on the plateau. What products might the Valencia farmer have to sell?

When the early missions were established on the coast of California the padres (priests) introduced many Spanish crops. Name those still grown in California.

The U. S. raises more oranges than Spain. Explain the following table:

Chief Orange Exporters

Spain	770,220 tons
Palestine	255,900
U. S.	189,530
Brazil	113,278
Italy	102,696

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Unit V—France

Unit Objective

France possesses some of the fine crop land of Europe but because she uses in addition some poor, stony, dry land in an endeavor to be self-sufficient her average crop yields appear low when compared with those of her neighbors. The long, hot summers of southern France enable that section to specialize in grapes, as does also the less favorable Bordeaux Valley. France has the finest iron ore deposit in Europe. Since her supply of coal is not great, France usually sells much of the ore she mines. To work up her ore and carry on other manufacturing she needs coal in addition to that of her own production. The historic and beautiful city of Paris in the midst of France's largest plain carries on a highly specialized manufacturing industry which depends for its success more on skill and artistic ability than it does on coal and bulky raw materials. Southeastern France has harnessed much water power in her mountain streams.

Not much was heard of France, or the Kingdom of the Franks, until after the great Roman Empire had begun to fall apart. For many years during its early history the land of France was held in great feudal estates for it was in that country that the growth and effects of feudalism were most marked. Many customs and terms were introduced during that period which influence Europe and America even down

to today. In France a great revolution came a few years later than our own Revolutionary War. The government of France was then changed from a monarchy to a republic. We in the United States maintained our republic continuously, but France for a period of years returned to a monarchy.

I. Investigations into the Geography of France

Few countries are alike throughout. Most countries present great contrast from section to section. In discovering the geographic personality of a country, one must investigate the country section by section. The statements numbered 1 to 11 give the keynote to various sections of France. To which of the following sections does each description refer? You will not be able to decide this until you have studied France.

Around Lyon	Along the Mediterranean coast	Paris basin
Brittany	Garonne basin	Central Plateau
The Calais coast	Along the coast near Bordeaux	Limoges
Lorraine near Nancy	In north France near Lille	

1. Miles of vineyards and olive orchards with a blue sea in the distance.
2. A hilly peninsula of small dairy farms; on its coastal lowland early vegetables are grown; along its shores one may see the boats of the sardine fishers.
3. A wide river basin in which one sees wheat fields, small patches of corn and many vineyards.
4. A city at the western base of a central plateau. Loads of fine white clay from nearby, and loads of coal enter the gates of the factories which make the city famous.
5. Miles of pine trees on old sand dunes, acres of pine cones set to dry for seed, little clay caps fastened on the sides of the pine trees.
6. The hoisting machinery over mine mouths surrounded by great piles of coal waste, factory after factory from which come cotton goods, linen goods, machinery.
7. Train loads of raw silk coming in, train loads of every kind of silk cloth pouring out.
8. The best wheat fields in France covering gently

rolling country; few farm houses on farms, farmers living in little villages.
Fields of sugar beets with many workers.

9. Passenger boats coming in from Dover, England; American and British tourists disembarking.
10. Mine mouths from which iron ore is being hoisted, miles of blast furnaces, trains carrying steel rails and plates.
11. A plateau from which many rivers run. In its forests swine feed on beach nuts and acorns. Many sheep roam on its slopes. Hundreds of factories make Roquefort cheese from ewes' milk. Other factories make cheese from the milk of dairy cows.

II. France in Days Gone By

A. France in the Middle Ages

Egypt, Palestine, Greece and Italy were important during ancient times, but France as a country did not exist then. We look at it as it was in what men call the Middle Ages, a period of time stretching from 500 A. D. to 1500 A. D. We shall begin, not at the earliest of these dates but during the reign of one of the greatest of the early rulers.

1. Charlemagne—King of the Franks, 786-814
   Why was he called a friend of learning?
   Why was he called a friend of law?
   Why was he called a friend of the Christian religion?
   How large did he make his empire? Did it include any parts of the old Roman Empire which you looked at when you were reading about Julius Caesar and Augustus Caesar?
   When and where was Charlemagne given the name Charles Augustus? After Charlemagne, came several weak kings who did not rule as well as he did and feudalism grew strong.
2. Feudalism
   Note. There was feudalism in other countries and in France, too, prior to this time but it "developed most rapidly in the land of the Franks where it took form during the eighth, ninth, and tenth centuries."
   Feudalism was a system by which men enrolled under a powerful noble to obtain protection.

a. Why the need of protection
Were there invasions into France?
Was there fighting inside France?

b. A vassal pledges fealty to his lord
When you have read all you can about this and found the oath of fealty suppose you write up a scene which your class can present for the benefit of the other children. You will need to investigate the dress of both noblemen and vassals. What did the lord have a right to expect from his vassals?
What benefit did the vassals receive?
In what way did the nobleman probably secure the land which his vassals were given the right to use?

c. The castles of the nobles
Why so massive?
How did the nobles spend their time?
Investigate these terms: page, squire, knight.
Investigate: hunting, tournaments, fighting.
Do you find any mention of traveling minstrels?
What is the meaning of chivalry. Make a list of the things that have come down to us from the days of chivalry.

d. The life of the peasants
The large feudal estate was called the manor. Some of these manors were large and some were small clearings in the forest.
Find out what you can about the work of the people who tilled the soil of the manor. Do you find any mention of "three fields." The arable or crop land of the tenants was generally divided into three fields; the "spring planting field," the "fall planting field," and the "fallow field." A household was given several small strips in each field often far apart. In return for this the peasants worked on the lord's own land from two to five days each week.
Why leave so much land fallow? French and British farmers do not today. What would be the disadvantage to the farmer of the widely separated strips. Between two strips were often bands of turf used as paths.

e. Feudalism dies out
You remember when studying Palestine we mentioned the Crusades. The French nobles lost much of their wealth in them. Towns grew and offered protection.
Trade increased and a merchant class grew strong.

f. The building of cathedrals
Find pictures of beautiful cathedrals built in France during the Middle Ages.
Much was done for mankind by the monks in monasteries. In what ways? (Read the story of *Gabriel and the Hour Book.)*

3. France develops into a united nation
   a. The great feudal estates are drawn together under powerful kings.
   b. A long period of war with England takes place, and Joan of Arc becomes France's heroine.
4. France after the Middle Ages

Note: We have not time to follow through France's history to the present, but it would be well to call to the attention of the children the periods of Louis XIV (1643-1715) when Frenchmen were establishing posts in the Great Lakes region of the United States and Canada. It would be profitable also to look at the period when Napoleon sold the Louisiana Territory to us.

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Unit VI—Scandinavian Peninsula, Denmark, and Finland

I. Norway

A. Major geographic understanding of Norway

A long narrow country with a deeply indented seacoast backed by high mountains has for centuries turned its attention to the sea. All year around its fishermen bring in cod and herring. Its steep mountain sides furnish waterpower for the many sawmills in the southern third of the country. The farming area is small and limited to a lowland in the extreme south where the summers are long enough to grow hardy grains.

B. Suggestions for study

1. There are six countries which far outstrip all others in the tons of fish caught. In order, these six important fishing countries are: Japan, Korea, United States, U. S. S. R., the United Kingdom and Norway. Japan catches more than three million tons while the catch of the others runs from a million to a million and a half tons yearly.

Investigate all of the advantages which Norway has for a fishing industry. This should include: an examination of the coast line, especially the famous fiords and the island fringe; the types of fish which are found in the cold coastal waters; the time of year fishing is carried on, especially an explanation of why winter fishing is possible along that far-north coast; Bergen, Norway's greatest fish market. In what ways are the fishing conditions along Norway like those along the Alaskan coast? In what ways different? How important are fish among Norway's exports? See Foreign Commerce Yearbook. Norwegian sailors are found on ships of every nation. What opportunities have they had for training?

2. The population density map of Europe in your geography shows that most of the people of Norway live in the extreme south. People live where they can make a living. What opportunities does southern Norway offer for making a living? Look into the problems of the Norwegian farmer. Only about two per cent of the land of the whole country is in crops. Why so little? Hay makers in Norway have much difficulty with wet weather. How do they succeed in drying the grass? Investigate the use of the "saeters" or high pastures. Many stories are written about them.

C. Special topics for reports

1. Norway's whaling industry. Norwegian whalers in 1938 caught 15,355 whales. Only British whalers exceeded this catch with 19,465 whales. Prepare a report on the location of the whaling grounds and the methods of the whalers.
2. Prepare a set of pictures of Norwegian fiords and ask some Norwegian in your neighborhood to discuss life in the fiords.
3. Many tourists travel to North Cape during the summer. Find a description of such a trip in order to see why that place is an attraction.

II. Sweden

A. Major geographic understanding of Sweden
Sweden is a far northern country with four important

natural resources: deposits of high-grade iron ore which furnish iron ore for export and raw material for a home iron and steel industry; extensive forests of coniferous trees; rivers flowing through these forests which furnish both transportation for logs and power for sawmills; areas of fertile, fairly level land far enough south to be suitable for certain short-season crops and a dairy industry of some importance.

B. Approach to the study of Sweden

Sweden's exports for a normal peacetime year were valued at 388 million dollars. Among the items of export were these:

Wood	$49,789,000	
Wood pulp	77,147,000	
Paper	27,078,000	
Card board	5,435,000	
Iron ore	37,672,000	
Ships and boats	10,734,000	
Pork	5,236,000	The only agricultural
Butter	9,024,000	products in which there
Eggs	939,000	was a net export

Forests and iron ore deposits furnish the raw materials for approximately what per cent of Sweden's exports to foreign countries? What per cent of her exports are agricultural products? Look up her imports of agricultural products. Why does she import more agricultural products than she exports?

C. Suggested investigations

1. Sweden is one of the world's largest exporters of lumber and has one of the world's most carefully supervised forest industries. Locate the forests. Investigate the time of year the cutting is done, the regulations which the government places on the cutting, the methods of getting the logs to the mills, the direction of river flow, the location of the sawmills, the harbors to which lumber boats come.
2. Sweden keeps at home ore from the iron-ore deposits which are most conveniently located for home use and permits exports from the deposits in the far north. Mining in these deposits within the Arctic Circle is very spectacular and the miners are said to be the best paid iron-ore miners in the

world. Compare mining there with that in the open pit mines in Minnesota. In what ways are the problems of the transportation of the Northern Swedish ore like those of Minnesota? Why take any of the ore out by a Norwegian port (Narvik) when there is a Swedish port equipped to handle ore?

3. Sweden has a population more than twice that of Norway. Compare Sweden's food imports with those of Norway. What advantages does she have over Norway for food production?
4. Stockholm is one of the beautiful cities of Europe. It is sometimes called the "Queen of the Baltic," sometimes the "Granite City of the North." What can you find out about it?

III. Finland

A. Geographic understanding of Finland

Finland is one of the larger countries of Europe but it lies so far north that most of its surface is wisely left in forests of birch, fir and spruce. Wood working and dairying occupy most of the workers and more than half of all the country has to sell is from the forest.

B. Comparison of Finland and Alaska, two high-latitude regions

1. Latitude. What is the northernmost point of Alaska, of Finland? What is the southernmost point of Alaska, of Finland?
2. Size. Which is larger? How many times larger?
3. Population. Which region supports the larger population? How many people per square mile are there in Finland? In Alaska?

C. Problem: How can Finland support many more people than Alaska is supporting? Could Alaska support as many as Finland?

1. Investigate the conditions for farming.
   a. Land (surface and soil)

   Eighteen per cent of Finland is covered with lakes, and 30 per cent is in swamps and peat bogs. Estimate how much of Alaska is more than 1,000 feet above sea level, which is an altitude too high for farms at such a high latitude.

b. Climate
There is practically no crop production inside the Arctic Circle. Why? How much of Finland and of Alaska lie within the Arctic Circle? The largest farming area in Finland is near Helsinki. There July averages 63 degrees and January averages 19 degrees above zero. The annual rainfall is 27 inches. The largest farm area in Alaska is near Fairbanks. There July averages 59 degrees and January averages 20 degrees below zero. The annual rainfall is 13 inches. What advantages for agriculture has Finland over Alaska? Finland raises crops on 6,215,000 acres while Alaska uses only 9,000 acres.

2. Investigation of the forests
Forest area—Finland 80,000,000 acres, Alaska 122,000,000 acres
Lumber exports—For Finland, see table in the section on U. S. S. R. in this bulletin. Alaska buys $500,000 of lumber from continental U. S. yearly. What can we judge about her lumbering industry? Advantages of Finland over Alaska for the sale of lumber
Consider the lumber-buying western European countries and the lumber-exporting North American countries.
3. Investigation of fisheries
The Alaska catch annually is 362,000 tons, Finland 21,000 tons.
4. Investigation of minerals

IV. Denmark

A. Major geographic understanding of Denmark
Denmark is a small country of highly specialized commercial agriculture. Its nearness to a large food importer has prompted it to build up a great dairy industry. Its soils originally were poor. But a large livestock industry and use of artificial fertilizer have improved the soils to such an extent that crop yields are high. Its mild moist summers favor pasture and hay. Through its cooperatives, creamery products have been standardized. So large a market does its high-quality butter reach, that the country is war-

ranted in importing large amounts of feed for its dairy herds. To make use of waste products from the creameries, great numbers of hogs and chickens are raised and bacon and eggs are sold.

B. Investigations

1. Denmark, the third Scandinavian country, is different from the other two. Make a bar a half inch wide and two inches long to represent the 16,000 square miles of Denmark. Each inch in length represents how many square miles? Underneath the bar for Denmark make a bar for Norway, which is 124,000 square miles. Then make a third bar for Sweden which is 173,000 square miles. Now make bars in red to represent the population of each country. Denmark has approximately 3½ million, Sweden 6, and Norway almost 3. Let each inch on your bar represent ½ million people. In proportion to its size which country is supporting the most people? How does Denmark support 3,500,000 people?
2. Usually we make an inventory of the resources a country has, but this time we shall make an inventory of the resources Denmark lacks.
   For example: Denmark lacks (1) coal.
   With all of the "lacks" you have listed it is all the more amazing that Denmark, an agricultural country, supports a population density of 224 to the square mile. Compare with our own state.
3. Why does Denmark find it most profitable to turn her attention to livestock products? What very good markets for butter, bacon, and eggs has she close at hand? What methods has she used to insure her products having a good reputation for high quality? What methods have been devised to help the farmers dispose of their products?
4. Copenhagen is said to have a "strategic" location. Explain.

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Unit VII—The Low Countries

I. The Netherlands

A. Major geographic understanding

The low, poorly drained land of western Netherlands is sometimes called the gift of the Rhine, but it has been made useful only through the hard work and ingenuity of Hollanders who have reclaimed it from the sea by means of dikes and canals and turned it into rich pastures for their dairy herds and into clean garden-like fields. Farther to the east the land rises above sea level, but as one might expect in a country so densely populated every foot of ground is used. Netherlands' two great seaports handle commerce out of proportion to the small size of the country. Her coal supply, plus her agricultural raw materials, plus the other raw materials which her ships bring into her two well located ports, plus a huge supply of labor have enabled her to build up a good manufacturing industry.

B. Suggested investigations

1. Examine carefully the map in your textbook to find the section of the Netherlands which is below sea level. Unless your map is a recent one it probably shows a great sea in the north, the Zuider Zee. That has been drained and only a lake in its center, Yssel or Issel, now remains. Try to find a description of the draining of the Zuider Zee as it will give you some idea how much work is required to reclaim an area from the sea and keep it drained. Wooden shoes and windmills both have a very close relation to these low wet drained lands of western Netherlands. Explain.
2. Western Netherlands has been called "the gift of the Rhine." From what countries has the Rhine gathered this gift? In what way does this delta remind you of the Mississippi delta ? In what ways is it very different. Prepare two columns:

Alike	Unlike
Example: flattish	Population density

3. Rotterdam and Amsterdam are two of Europe's busy ports. In what ways are the two cities alike? Examine pictures to see if both have canals. Which is built on islands? What advantages has Rotterdam

over Amsterdam? In olden times ships entered Amsterdam through the Zuider Zee. Why is that route no longer possible? What route do ships now take?

II. Belgium

A. Major geographic understanding

Belgium is the most densely populated country of Europe. Her manufacturing industry based on local coal and iron enables her to pay for the large amounts of food and raw materials which she must import. While her location is very valuable from the standpoint of trade it is very bad when she has neighbors who go to war.

Belgium's farm lands are cultivated like gardens and supply an amazing amount of food. However, her population is so great that she depends upon the outside world for large supplies.

B. Investigation

Belgium is much smaller than either Denmark or the Netherlands. Yet it supports a larger population. Work out an outline indicating all of the resources which enable her to do this. You will find a list of the world's largest traders when you study the next unit, the United Kingdom. How does Belgium rank among the traders? Why is her position good for trade but bad in the case of a European War? Belgium has been called the "world's busiest workshop." What kinds of goods are made in this workshop?

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Unit VIII—The United Kingdom

Unit Objective

Britain has contributed many things to America. Englishmen, Scots, Welsh, and Irish established most of the colonies in what came to be the United States. They brought with them the English language, and literature, folk tales, music and customs from all parts of the islands. Their laws formed the basis for our present government.

The United Kingdom is the seat of an important manufacturing development which is based fundamentally upon large supplies of easily accessible coal and smaller supplies of iron ore. The long mileage of seacoast with many good harbors favors the development of trade. The population has outgrown the food-supporting capacity of these islands and depends on overseas regions for a large per cent of its supplies. The manufacturing industry depends upon overseas regions for many of its raw materials. Imports of raw materials and foodstuffs are paid for by selling coal and manufactured goods abroad and by carrying in ships the freight for a large part of the world.

Britain has always been interested in ships and the seas as we might expect an island country to be, but has not always depended on other countries for food and raw materials. Less than two hundred years ago she was self-sufficient in foods and in many raw materials. Slowly, changes at home and abroad have made her dependent on other parts of the world for more than half of her food and turned most of her people away from farming to other industries.

Note: Make sure that the terms *British Isles, United Kingdom* are understood. The United Kingdom is a country. Its parts are England, Scotland, Wales and North Ireland. Eire or Irish Free State is the second country in the British Isles. The islands of Great Britain and Ireland plus many small islands make up the British Isles.

Approach to the Unit

Who owns the merchant marine, the ships which carry the goods of the world? We may reckon the tonnage each country owns or the number of ships. Why is the ranking in both columns not the same? Which would you consider the more accurate measurement?

	Prewar Data	
World	67,847,000 tons	30,990 ships
United Kingdom	17,781,000	7,203
United States	11,939,000	3,941
Japan	5,007,000	2,187
Norway	4,614,000	1,965
Germany	4,244,000	2,327
Italy	3,290,000	1,293
Netherlands	2,955,000	1,482
France	2,903,000	1,307

Make a bar to represent the entire tonnage of the world's shipping and color a section of the proper length to represent the tonnage of the United Kingdom. If you prefer to make ships, do so. Let each ship you make represent 1,000 actual ships. Put the correct flag on each. About what fraction of the world's tonnage is owned by the United Kingdom? About what fraction is owned by nations other than the eight which are listed?

Outline of Content and Suggested Teaching Procedures

I. Present-day Britain

A. Problem: Why does the United Kingdom need such a large merchant marine?

1. Let us examine the figures for some of the world's leading traders to see if we find an explanation for Britain's large merchant marine. The figures below are for the world's chief trading countries in peacetime.

	Imports	Exports
United Kingdom	$5,087 million	$2,578 million
United States	3,083	3,349
Germany	2,198	2,376
France	1,700	955
Japan	1,088	914
Belgium	919	857
Netherlands	858	631
Canada	808	988
Italy	727	548
India	615	754

Add the exports and imports for each country and fill in a third column headed "Total Foreign Trade." How many of the large traders are among the large ship owners? Do you find in the list any countries for which Britain might be likely to carry goods?

2. Is the United Kingdom engaged in this great trade because she is a large country? Compare size of the United Kingdom with that of the United States and with Iowa. Which is the better measuring rod in discussing size of the United Kingdom, Iowa or the United States.
3. Is the United Kingdom carrying on this great trade because it has a large population? Find the population and compare with that of the United States. Is that a worthwhile comparison? The United Kingdom is what fraction of the size of the United States? Compare the density of population in the two countries. (Note: density United States 44—United Kingdom 499). Make two rectangles each 2 inches square. In one, place a dot for each 10 people in the average square miles of the United States. Do the same for the United Kingdom.
4. Perhaps if we examine Britain's imports we may see why it seems necessary for her to own many ships. The average year the chief imports run about as follows:

Meat	$430 million	Tea	$146 million
Petroleum products	299	Machinery	139
Butter and cheese	279	Iron and steel mfg.	98
Wheat and flour	267	Oil seeds	86
Wood	246	Sugar	86
Wool	245	Iron ore and scrap	62
Cotton, raw	231	All other imports	1,931
Fruits and nuts	202	Total imports	5,087
Copper, lead tin	188		
Paper and paper pulp	152		

What fraction of the total imports do you recognize as food? Indirectly, corn and some of the barley

contribute to food since they are feed for the live-stock which provide food (meat, butter, milk). Oil seeds are used for margarine, for feed, and for soap. Find Kipling's poem "The Big Steamers." Note the lines

"We are going to fetch you, your bread and your butter,
Your beef, pork and mutton, eggs, apples, and cheese,"

Do the figures you have been examining agree with these lines?

5. How important are food imports to the United Kingdom? The table below gives some idea of the food produced in comparison with the foods consumed.

	Produced at home	Imported
Wheat and flour	15%	.....
Meat	44%	.....
Poultry and eggs	50%	.....
Dairy produce	48%	.....
Potatoes and other veg.	70%	.....
Fruit	44%	.....
Fish	110%	.....

Fill in the second column with the correct per-centage

B. Problem: Why does not the United Kingdom produce more of her food at home?

1. Food from the land

a. Table: Land Use in 1938

Plowed land	13,000,000 acres
Oats	2,500,000
Wheat	2,000,000
Barley	1,000,000
Clover and grass hay	2,000,000
Clover and grass pasture	2,000,000
Turnips	760,000
Potatoes	750,000
Sugar beets	340,000
Other crops	1,350,000
Permanent grass	36,000,000
Rough grazing lands	17,000,000
Other pasture	19,000,000
Total area	60,000,000

b. Graph

Make a bar 6 inches long to represent the total area of the United Kingdom (60,000,000 acres). One inch represents how many acres? Color yellow the first inch and a third to represent the plowed land. Color green the appropriate number of inches to represent the permanent grassland. Use figures in the foregoing table to estimate the necessary space for representing the land in permanent grass. Let us compare the crop land area of the United Kingdom with that of Iowa. Make a second bar 3½ inches long to represent the total area of our state (35,000,000 acres). Color 2¾ inches yellow, representing our plowed land; mark half an inch green representing our permanent pasture.

From the graph you have made, draw some conclusions on possibilities of food production in the United Kingdom as compared with Iowa.

Compare the population of the United Kingdom with that of Iowa. Why is Iowa a great exporter of food; why is the United Kingdom a great importer of food?

c. The chief reason for cropping less than one fourth the land in the United Kingdom

(1) Examine the surface map to see the large amount of rough land in the United Kingdom

(2) In which of the sections of the United Kingdom do you figure that there is the least crop land: Scotland, Wales, Northern Ireland, England?

(3) Some of the rough land is pastured. What animals can thrive on rough pastures and on the poorer forage of the wind-swept moors?

d. Use of the permanent pasture

Would you agree with this statement: "Britain has a carpet of grass with a pattern of crops"? These pastures and the crops of hay and turnips and oats enable her to keep many head of cattle and sheep. She has half as many sheep as the whole United States, and twice as many cattle as Iowa. Prepare a list of breeds of cattle and

sheep, and check all of those which you find originated in the United Kingdom. Notice the figures on average monthly temperature given in the table below and decide whether the weather is mild enough to permit cattle and sheep to be out-of-doors all winter long. The average monthly temperature for Des Moines is also given so that you will be able to compare the temperatures in England with temperatures you know in Iowa.

(Degrees Fahrenheit)

	J	F	M	A	M	J	J	A	S	O	N	D
London	39	40	43	47	53	59	63	62	59	49	44	39
Des Moines	20	23	36	50	61	71	75	73	65	54	38	26

The coldest month in England is about like what month in Iowa? The summer weather in England is better for pastures than July and August weather in Iowa.

e. Use of cropland

(1) Acreage sown in grass and clover

In the United Kingdom the farmers use some of their plow land for pasture and hay just as Iowa farmers do; the British farmers emphasize the livestock phase of agriculture just as Iowa farmers do. They find it wise to produce as much beef and mutton and milk at home as possible, even though they have to buy more grain from distant lands. Which is more expensive to ship long distances, fresh meat or wheat? Why must fresh milk be produced within a short distance of the city markets?

(2) Grain and root crops

(a) Refer to the table of Land Use in the United Kingdom in 1938. What grain raised in Iowa is missing from the list of British crops? Why? Why are oats the largest crop of the United Kingdom? Why is the eastern side of the British Isles better suited to wheat than the western? Examine the rainfall map to see if you find help on this question. Which side would have more sunshine? Why would the west side of the island

do well for oats? According to the figures in the table you have, how many bushels of wheat would Britain need to import that year to furnish enough bread for her people? (It takes 1.4 pounds of wheat to mill one pound of flour.) Does your text mention fine farm lands in the lowlands of Scotland, the London Basin, and the "Fen" lands of the east? Notice the acres given to turnips. These are feed for cattle and sheep. Root crops do well in a cool, damp, climate.

(b) Compare the yields per acre in the United Kingdom with those in Iowa.

	Average Per Acre Yields				
	Oats	Barley	Wheat	Corn	Potatoes
U. K.	55 bu.	37 bu.	34 bu.	0 bu.	246 bu.
Iowa	32	24	18	50	77

(c) What are the reasons for the higher yields per acre in the United Kingdom? Do you find statements in your text-book on the high cost of fertilizer for British farms? Examine the following table to find another reason.

1930	No. of Acres of Plowed Land	No. of People Employed In Agriculture	In Manufacturing
England & Wales	8,686,037	1,059,100	7,579,100
Iowa	26,984,111	330,881	173,149

Total population: England & Wales 41,215,000; Iowa 2,470,939

f. Dairying

List the advantages which you consider the United Kingdom offers for dairying. (Note—These should include: abundant rain and warm, but not hot, summers producing good grass; winters mild enough to permit stock to be out-of-doors much of the time.) Do these advantages remind you of the Puget Sound region of western Washington?

Why is it necessary to buy butter from outside, when Britain is a good dairy country? What about the market milk needed for her people? How much butter is produced in the United Kingdom? How much is imported? The United Kingdom has been accustomed to buying butter from three near neighbors. One of them is within the British Empire. Which one? Name the other two. But these three countries do not provide enough butter, so the United Kingdom sends to a distant island member of the Empire or Commonwealth of Nations for both butter and cheese. This country lies between 35 degrees and 48 degrees south latitude. Name it. By what routes might that butter and cheese travel to Britain? About how many miles would they travel? Would refrigeration be necessary. Why? Is refrigeration necessary for butter shipped from Denmark?

2. Food from the sea

There is one food of which Britain sells more than she buys if we measure by weight. That is fish. On the other hand she buys more than she sells if we measure in money. The fish bought are the more expensive kinds such as canned salmon and sardines. The fish sold are cheaper kinds, such as salted herring and cod. Examine the material you find on fishing in your textbook to see where the finest fishing grounds are. There are great fish markets such as Aberdeen, Grimsby, Hull and Yarmouth from which fish are shipped to other sections of the island. The annual per capita consumption of fish in the United Kingdom is 42 pounds. In the United States we have a per capita consumption of 15 pounds. How do you account for the difference? What is the greatest distance you can get away from the sea in the island of Great Britain? Measure carefully using the scale of miles.

3. Summary. We should by this time have arrived at some conclusions on British imports of food and her absolute dependence upon her merchant marine.
   a. A large population needs a large food supply.
   b. Much land is too rough and thin soiled for crops.

c. The lack of hot summer weather restricts the variety of crops which can be grown.
d. Mild temperatures and plenty of moisture produce good grass which supports many sheep and cattle.
e. Since animal products are more easily perishable than grain this use of land is profitable. Even with this emphasis on animal products Britain is still unable to produce enough.
f. The competition of pioneer lands such as Canada or Argentina make it difficult for high-priced land and labor of the United Kingdom to compete with them in production of grain.
g. The standard of living in the United Kingdom is high as compared with many other European and Asiatic countries.

C. Problem: How does Britain pay the huge bill she has each year for imports? If we examine the list of her chief exports we may be able to gain some idea.

Textiles	$373 million	Non-ferrous metals	$ 78	million
Machinery	308	Chemicals	76	
Iron and steel	243	Spirits	62	
Coal	207	Clothing	50	
Cotton and woolen yarn	121	All other exports	981	
Autos and parts	79			
		Total	2,578	

Of the ten items listed how many are manufactures? Most of the smaller items which make up the "all other exports" are manufactures also. Aside from manufactures what large item is shown in the table?

2. Sale of coal

Britain's coal gives her something to sell, but more than that, it enables her to manufacture many commodities for sale. Britain and Germany are the world's large coal exporters. Gather material from the World Almanac to make a graph showing the world's greatest coal mines. On an outline map of the British Isles place the coal fields if you can find a map to copy. Normally about one third of the coal Britain mines is sold to foreign countries or is used in ships which bunker or fuel in British

ports for an ocean trip. Two coal fields are responsible for most of Britain's exports. Which are they? Place on your maps the two ports from which the coal leaves. What advantages have these fields for shipping coal out? (Keep your map to use later.)

3. Sale of manufactured goods

Nearly forty per cent of the coal mined is used to run factories. Let us see what Britain's chief factories are. Perhaps we could measure them by the number of persons employed.

Engineering, ship building, vehicles	1,061,700	persons employed
Textiles	1,050,200	
Iron and steel	533,500	
Clothing	515,700	
Food, drink and tobacco	505,600	

Unfortunately for Britain she does not produce at home all of the raw materials she needs. Look over the imports and list the commodities you find which might be raw materials for British factories. Of some raw materials Britain produces a part at home, in other cases all comes from abroad. Select those which you judge from your reading must come wholly from abroad. We have the data for a few raw materials here:

	Produced at home	Used in the mills
Wool	65,000,000 lbs.	782,000,000 lbs.
Cotton	None	1,298,000,000 lbs.
Iron ore	12,701,000 tons	19,750,000 tons

a. Textile manufacturing

On your map of the coal fields place the district whose chief industry is manufacturing cotton textiles. Red dots might be used to show it. Around what city will you center it? The city is on a canal built to bring ships carrying cotton right to its wharves. What large city on the estuary mouth of the Mersey handles much cotton? This harbor lies much farther north than Quebec but it is never icebound. Why? Make a list of the advantages the Manchester district has for manufacturing cotton. Search your text carefully for these. Why does Britain grow no cotton at home?

Usually the United Kingdom buys from the United States one half of her cotton imports. It is of great importance to us that her cotton manufactures prosper. Look in the U. S. *Agricultural Statistics* to see if the United Kingdom is our best customer in this line. Look under the heading "cotton exports." Why does Britain have a great market at home for cotton goods? In spite of the large home market the Manchester district reckons it must sell three fourths of its cotton goods in foreign lands if business is to prosper.

If one starts from Manchester, the center of the cotton district, and travels about forty miles eastward he finds himself in the midst of the woolen manufacturing area. At what city? Place the two most important woolen manufacturing cities on your map. Over what hills will one have traveled to reach them. On those hills in early days grazed the sheep which furnished the wool for the spinning wheels. Sheep still graze there but millions of pounds of wool are imported. Two thirds of the imported wool comes from other parts of the Empire.

b. Ship building
Along the Clyde and Tyne river banks are shipyards where such large ships as the "Queen Mary" and the "Queen Elizabeth" have been built. Glasgow on the Clyde is Britain's second largest city and Newcastle on the Tyne is about twelfth.

c. Iron and steel industry
The iron and steel industry of the Middlesbro district and of Birmingham, the third largest city in Britain. What advantages do these places offer the industry? Iron ore from Spain and Sweden is needed in addition to England's own.

d. Diversified manufactures of the London district
London with its population of over eight million is the only great manufacturing center not on a coal field. You will wish to find why it manufactures? Look carefully at its huge docks where raw materials from foreign lands pour in. Since it is so much larger than any of the other cities

in the Kingdom you will wish to see what factors have contributed to its growth. What do these names mean to you: Big Ben, Westminster Abbey, Tower of London, Buckingham Palace, St. Paul's?

4. Services to other countries
   Britain's exports are much less than her imports each year but she pays the difference in many ways, such as carrying goods for other countries, writing insurance, especially marine insurance, international banking, and taking care of tourists.

D. Additional investigations

1. One of the largest china industries of the world lies around Stoke-on-Trent. Make a report to the class on how fine chinas are made. You may be able to show samples of Spode or Wedgewood dishes.
2. Let a committee plan a three weeks tour for your class in the British Isles. You may rent cars when you leave the boat. Plot your route on a map so that your classmates may see just where they are going. Be able to explain just why your choice of routes is good. It might be well to have rival committees to see which can plan the best route. Perhaps you can show pictures to convince the group of the wisdom of your choice.
3. Read a story book or a poem whose scene is laid in the British Isles and see how many of the places mentioned you can find on the map.
4. There are few forests in the British Isles, yet the climate and the soil are just as suitable for trees as in western Washington. Investigate and explain. Did not the English once smelt iron ore with charcoal?
5. Make a list of the songs you sing which came from the British Isles. Investigate the readers you have used to see if they contain selections from British authors.
6. Most of the linen imported into the United States comes from the United Kingdom. Prepare a talk on the making of linen to present to the class. You will need to mention Britain's need of importing additional flax fiber from Russia and Belgium. Belfast and Dundee will be sure to come into your report.

7. Eire (air ah) or Irish Free State
This country is often called the "Emerald Isle." Can you suggest the reasons? All of the commodities Eire has to export are either directly from the farm or manufactured from farm products. Most of the commodities she buys are manufactured goods and coal. Suggest a country which could profitably trade with her. Eire's chief food import is wheat, yet she devotes twice as many acres to oats and nine times as many to hay as she does to wheat. Can you find an explanation? One third of the value of her exports comes from cattle. Where are they probably sold?

II. Historical Development of British Industries

In our study of the geography of the United Kingdom we have seen that only a small per cent (6%) of the people are engaged in agriculture. Let us go back in history to a time when about 80 per cent of the people made a living by farming and Britain's interest in the sea was great but very different from her interest in it today. We shall follow the changes that brought her to her present position.

A. Britain early becomes powerful on the sea
Investigate in your history text and in readers or other material.
1. British privateers in the days of Queen Elizabeth pursuing Spanish treasure ships
The Spanish ships laden with treasure sailed from Vera Cruz, Mexico and Porto Bello, Panama. Suggest likely places for the British ships to await them. Read to check your decisions and to find what happened when they met. Do you find any well known names among these privateers?
2. A British fleet defeating the Spanish Armada
3. British carrying on fishing on the banks of Newfoundland
4. British ships carrying colonists to America and bringing back tobacco, furs, and timber
After you worked on these points make a bar about two centuries long (let us say 1575 to 1775). In colors place the four points above at their proper places on the bar. You should be able to mark some events in our own history on the bar if you take pains with it and try to make it both meaningful

and artistic. Could you fit the life of Shakespeare into this bar? (1564-1616). What was he contributing?

B. Britain greatly improved her farming

1. During a long period of time much land in Britain was held in the same type of feudal estates that we studied about in France. For example: In a village in England in 1279 a serf held from his lord a cottage and 12 acres. For this he worked for the lord two days a week. In August and September he must harvest two acres of the lord's grain each day. At Christmas time he must bring the lord five chickens and forty eggs. He also had to thresh sixteen bushels of barley and make it into malt for the lord. If the system was the same as in France, his land holdings probably would be in small strips. Point out some disadvantages of this whole system. In what ways would it hold back improvements?

2. Gradually from 1500 to 1800 many improvements were made in farming.

   a. The English tenant farmer was able to secure his land in one piece instead of in strips much earlier than the tenant farmer in France. Point out the advantages of having the land in one piece.

   b. Land was being enclosed by fences or hedges.

   c. Low wet land, of which England had much, was drained, first by ditches and then someone invented a clay tile. Why would drainage not be possible in the old strip system?

   d. New crops were introduced from the continent —root crops and clover. Why did clover make it unnecessary to have so much fallow land? When did Britain begin growing potatoes?

   e. Many breeds of stock were developed, especially toward the end of this period. Make a list of all the breeds of cattle, horses, sheep, and swine raised here in Iowa and then find out how many of the breeds originated in the British Isles. This will be quite a long task but you can ask for outside help. You will credit the Jerseys to the British Isles will you not?

f. Britain by improving farm methods and stock was still able to sell some farm products even though her population was increasing.

C. Britain improves her manufacturing 1750-1850

1. British ships are sailing all over the world and Britain's own population is increasing. She could sell quantities of manufactured goods if only she could manufacture cheaply.
   Read descriptions of the making of woolen and cotton textiles in cottages to see how slow the work was. It took eight or ten women working at spinning wheels to keep one man busy at a loom.
2. A series of inventions helps Britain on the way to cheap goods.
   a. Investigate in your history or encyclopedia the men who helped the textile industry. Prepare a chart which will show what each did. Be sure to place them in the proper order as to inventions:
      Hargreaves, Arkwright, Crompton, Cartwright.
      Note: These inventions would not have helped Britain as much as they did if it had not been for an invention in the United States in 1793. What was it? How did it help?
      Water power was used and the industry moved from cottages to small factories near power sites.
   b. James Watt perfected the steam engine.
      The steam engine came into use in the coal mines. In what two ways could the engine help there? How was coal taken out before that?
      Britain can now move her factories into coal fields.

D. Britain begins to realize that it is more profitable to turn some of her crop land into grass and buy food abroad.

1. She abolishes the tariff on wheat imports.
2. Steamboats can carry food more dependably than sailboats. An Englishman wrote: "It was the triple expansion engines, which conserved the carrying space available to shipping, that did much to reduce the acreage under wheat in this country."
3. New wheat growing lands in the Americas pour cheap wheat on the market. An Englishman wrote

some twenty-five years ago of our western states, "A farmer may buy in such lands a holding of 500 acres for the rent he would have to pay in this country for a couple of years for a farm of the same size."

To see the rate at which cheap wheat was poured on world markets from the United States alone use the figures below and make a series of ships to carry our exports for each of the years given. Load each ship with 25,000,000 bushels of wheat. Of course that is too much for a ship, but our graph would be too cumbersome if we use actual shiploads.

U. S. Wheat by Decades

	Production	Per cent exported
1849	100 million bushels	7
1859	173	10
1869	260	20
1879	448	40
1889	490	22
1899	547	34

E. How the British Empire was built

As we have worked through the geography and history of the United Kingdom we have looked at many parts of the vast territory over which the Union Jack flies. Perhaps we should investigate to see how it was built up.

1. The United Kingdom comes into existence

We have not time to go back to the early history of England. Sometime you will read the stories of the famous early king, Alfred the Great. Sometime also you will read of Scotland in the days of its hero, Robert Bruce—days when there were wars between England and Scotland. (Note to teacher: Some of your pupils may have time to read and report on Alfred, Bruce and William the Conqueror.)

For the present we shall simply note that—

a. Wales was conquered by England in 1282.
b. Beginning in 1603 England and Scotland had the same king, and one hundred years later the two countries were united.
c. Ireland joined the rest of the United Kingdom in 1800 but was divided later into Irish Free State

or Eire and north Ireland. You can find many interesting stories based on life in Ireland.

d. Do you know what part each of the following plays in the government of the United Kingdom: parliament, prime minister, king?

2. While these unions were going on many colonies were being added. Check in your geography to see where the parts of the Empire are. What additional parts of North America did Britain once own? When did she lose them?

Several countries which once were considered colonies are now spoken of as dominions. Which are they? Why is it an honor for a colony to become a dominion?

What did Kipling probably mean when in the poem, *Our Lady of the Snows*, he has Canada say to Britain:

"Daughter am I in my mother's house
But mistress in my own."

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Unit IX—Central Europe

General View

Space will not permit outlines for the study of each of the countries in the part of the continent known as central Europe. Suggestions will be given for Germany and Switzerland and brief references made to others. Pupils should at least be familiar with the location and capital of each country in Europe so that when reading the newspapers or listening to the radio they will be able to orient themselves. Call attention to the fact that central Europe as a whole lies farther north than Iowa but its winters are not nearly so severe as ours. Emphasize whenever possible the peninsular character of western Europe and the effect of this on climate. Emphasize also the many neighbors each of these countries has and the difficulties of boundaries which involve tariffs, passports, different moneys, and different languages. No matter how wars may change boundaries, there will remain to these various nationalities, heritages of language, history, literature and music which have been theirs through centuries. It is well that our pupils learn some of the contributions these groups have made to the world. This is not entirely the task of the social studies; many other subjects and activities should join in it.

I. Germany
  A. Major understanding
    Germany as it has stood on the maps of Europe for

nearly three fourths of a century is young when compared with other countries of Europe. It is even younger than our own United States. Prior to that time the region contained a group of separate states or kingdoms often fighting amongst themselves.
Germany has grown to be a very densely populated country which has to use every resource wisely in order to maintain its people. Its only large lowland has many handicaps to farming and has required much hard labor and great outlay for fertilizer to induce it to produce the large yields it now does. A rich deposit of potash, in the center of the northern plain, furnishes one of the ingredients for the much needed fertilizer and is a basis for certain chemical industries. Coal, the country's most important mineral, has enabled Germans, even though they were very late in beginning, to build up one of the world's greatest manufacturing industries. Many navigable rivers which are connected by a network of canals help to carry heavy goods cheaply from one section of the country to another.

B. German history

Germany as we see it on our maps and in our geographies is a comparatively new country. For centuries war-like tribes moved about on the north German plain battling each other and often invading other countries. Through invading Italy they came in contact with the Latin language and Christianity. Finally they settled down and developed many separate states or kingdoms. When they began planning a union there were thirty-eight of these separate kingdoms. Which one was large and very much more powerful than the others?
You may be interested in looking up some of the old myths and stories of these warring tribes. Words derived from the names of three of their gods you use every week. What names? Read some of the opera stories to find how these old heroes and heroines have come into our literature.

1. Plans for a union
   a. Merchants claim that separate states hinder trade.
      A group of merchants in 1819 complained that to trade from Berlin to Switzerland they had to

cross ten states, all of which had tariff charges. They claimed that a French merchant could trade from Spain to Holland without meeting a single customs agent. How does the distance from Berlin to Switzerland compare with the distance from Council Bluffs to Chicago? What different proceedings had to be gone through each time they crossed a boundary. Give details as you see them. Would this involve expense? In 1834 seventeen of the states united in a tariff union. Prussia was the most powerful of the seventeen. Find a map showing the part of Germany known as Prussia. But Germany was not yet a nation.

b. The German Empire is born
In 1871 William, king of Prussia, was proclaimed German emperor. What action of France had helped drive the states closer together? Germany gained from France in that war provinces that were very valuable to her. Which two? France did not get them back until 1917.
What important event in U. S. history had closed a few years before the Empire was formed?

2. Germany developed highly in many lines
   a. She applied science to manufacturing, forestry, agriculture.
   Germany was very far behind in manufacturing by machinery at the time both Britain and France were advancing. Even when the empire was formed many things were still made by hand. When she began to train chemists and other scientists in her universities and educate the workers she made rapid improvement.
   Investigate the following as examples of the work of German scientists and manufacturers:
   (1) photographic equipment
   (2) aniline dyes
   (3) synthetic camphor
   Before Germany worked on it where did our dyes come from? The camphor?
   b. Music and literature
   About two hundred years before the discovery of America there spread through Europe a desire to know more about the world and of what man

had done before that time. The period is sometimes called the "New Learning"; more often men say the "Renaissance."
A German, Johann Gutenberg, contributed what to it?
A German, Martin Luther, contributed what?
Perhaps in your music period you might make a list of all the songs you like to sing around Christmas time and see how many of them were written by Germans.
Do you know the opera, *Hansel and Gretel?*
Have you ever read the story of Lohengrin?
Does your school orchestra play music by Beethoven?

C. Suggestive topics in geography
   1. The northern plain
      a. What are the handicaps this plain offers farmers? Examine figures for per acre yields given below to see if the handicaps have been largely overcome. The figures for per acre yields are five-year averages. Do the lower yields of the United States mean that we have not overcome the handicaps as Germany has? Or can it be that we did not have such handicaps, but do not practice such intensive work in the fields as they do? Compare the density of population of the two countries. Belgium and the Netherlands have higher yields per acre than Germany. Compare the densities of population in those two countries with that of Germany.

Yields per acre

	Potatoes	Sugar beets	Rye	Wheat	Oats
Germany	238 bu.	14.5 tons	28 bu.	32 bu.	53 bu.
United States	108	11.2	11	14	26
Netherlands	276	17	36	44	57
Belgium	320	14	39	38	70

      b. Germany devotes 11 million acres to rye and less than half that much to wheat. As you think of her climate, does that seem a wise choice? Germans use a great deal of rye bread because that is the crop they most profitably raise.

c. How does the agriculture of southern Germany differ from that of northern Germany? Consider the surface of the country there.

2. Manufacturing sections
   a. Find on your map the region known as the Ruhr. Does it show up on your map as a cluster of cities? Underlying it is one of the finest coal fields in Europe. Here is Germany's greatest iron and steel industry. Her total iron and steel production is exceeded only by our own United States production. Germany needs to import much iron ore and scrap iron to keep up this output. Has she no ore of her own? From whom may she secure ore? Why has Germany fought several wars over ownership of Alsace-Lorraine?
   b. In the Ruhr Valley is a large textile industry. What raw materials would you judge Germany has for this? Which must she buy outside? In the area, too, is a chemical industry based on the by-products of the coking industry. Prepare a long list of things manufactured in the Ruhr. Can you figure out how certain manufactures are related to others? For example, the making of dyes to the coking industry.
   c. Which German district is famous for china? For musical instruments? For sugar? On a lignite coal field near Leipzig is a huge plant for taking nitrogen from the air. This is made into nitrates. For what purpose?
3. The much-used Rhine
   a. Trace the Rhine from the glacier where it originates in northern Switzerland to its mouth. Where does it serve as a boundary between two countries? How many countries may easily use it? Belgium has canal connections with it.
   b. The Rhine is the busiest river in Europe. List commodities coming upstream to the busy, hungry Ruhr. List goods traveling downstream to waiting ocean steamships at Rotterdam. Note the many cities along the Rhine. What heavy commodities are produced along its banks?
   c. Find on the Rhine places you have heard mentioned in song or story. Do you know "The Lorelei," or "The Mouse Tower"?

4. Berlin

Berlin, like Paris, began on an island in a river. Point out other ways in which they are alike. Both specialize in manufacturing articles which require much skill and little raw material. Suggest reasons for this. Is either city on a coal field? Would you consider Berlin's location a good one for the capital of a country?

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III. Switzerland

A. Major understanding

Northern Switzerland is a densely populated plateau occupying about one third of the country. Here lie fertile fields and manufacturing establishments which make use of hydro-electric power generated in swift flowing mountain streams in the Alps. The mountains of the south and west support a thriving dairy business in their valleys and high pastures and entertain each year thousands of visitors who come to enjoy the beautiful scenery.

B. Study suggestions

1. More than forty per cent of the workers of Switzerland make a living by manufacturing yet many of

us think of Switzerland chiefly as a dairy country. Most of the Swiss stories you have read have their scenes in what part of the country? Most of the pictures of Switzerland that you have seen are in what part of the country? In what part of the country are the manufacturing cities?

2. What raw materials do you find Switzerland has for manufacturing? She imports raw cotton, wool, silk, steel and coal. Is she wise to use the steel she imports for watch springs and light machinery rather than for locomotives and automobiles? Explain your stand on this. If she wishes to export manufactures of cotton, would you suggest bath towels and sheets or fine muslin and cotton lace?
3. Prepare an exhibit of pictures of Swiss mountain scenery and work up a lecture on them for your room.
4. Write an advertisement for one of the well known tourist sections of Switzerland. Remember that advertisements of this type must be well written and must not overstate attractions.
5. Write a short article describing the difficulties which Swiss engineers have had to solve in laying railroads through the Alps. Include some information about the Simplon tunnel and its rank among the tunnels of the world.

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Unit X—Union of Socialist Soviet Republics

Unit Objective

The Union of Socialist Soviet Republics is the largest country in the world, stretching across two continents. It lies in such high latitudes and receives such scanty rainfall that only a small fraction of its land is fit for crops. These handicaps plus poor farm practices and the lack of farm machinery result in low per acre yields. The enormous acreage farmed makes the country a leader in many crops despite the poor yields. Russia has the largest forest area in the world, but poor transportation facilities handicap timber removal. The country has a large and varied supply of metals, is rich in petroleum, and has widely distributed coal fields. In spite of these advantages of raw materials and power, Russia has only lately begun to develop an extensive factory system and it will take many years to supply the needs of its own vast population with manufactured goods and with a well developed transportation system.

For centuries most of the land in Russia was held in the large estates of the wealthy. The work on the estates was done by serfs who lived under very poverty-stricken conditions. Serfdom was not abolished until the middle of the last century. Even then peasants still remained poor and uneducated. During World War I the absolute monarchy was abolished. A little later all land, minerals, and forests became the property of the government.

Approach

One of Russia's southernmost cities is Baku, an oil port on the Caspian Sea. It lies in latitude 40 degrees north. On a map of North America select a point on the 40th parallel. From it draw northward a line equal to one from Baku to the north Russian coast. Be sure that you consider the difference in the scales of the two maps that you are using. Where did this northern point of this Russian line fall on the map of North America? What guide line on the map helped you to travel straight north? What fraction of the U. S. S. R. do you judge lies south of Iowa? How does the distance from Leningrad to Vladivostok compare with that from New York to San Francisco?

When we studied the United States in the fifth grade we divided it into human-use or work regions, each one very different from the others. One would expect that the U. S. S. R. should be broken into many human-use regions because it is more than twice the size of the United States. There is, however, much less variation from place to place in the U. S. S. R. than there is in the United States. On your physical-political map estimate how much of the U. S. S. R. lies below 1,000 feet in altitude. On a rainfall map estimate how much of Russia has less than 20 inches of rain. How much of U. S. S. R. would you think lies too far north to grow the crops of the southern United States. Even though we had time to explore U. S. S. R. as thoroughly as we did the United States, we would not find as many different human-use regions. In this short study we shall emphasize the human-use regions which show the greatest contrasts.

Outline of Content and Suggested Teaching Procedures

I. Geography of Russia

A. The tundra

This is a low, swampy, treeless plain very much like that of northern Canada and Alaska. It extends along

northern Europe and Asia for thousands of miles. Lapps and other Eskimo-like people herd reindeer on lichens and mosses. Fishing is carried on along the coast.

B. The forests

1. Area and type
   The U. S. S. R. possesses the world's largest forest area. The northern section is coniferous forest of spruce, fir, pine, and larch. Birch is also present as in very similar Canadian forests. On the southern edge of this forest more deciduous trees appear.
2. Transportation
   Few railroads penetrate the forests and much dependence is placed on rivers. Since most of the rivers of the region flow north, their lower sections are icebound many months of each year, which greatly hinders transportation. Leningrad, Archangel, and Igarki on the Yenisei handle much of the export lumber. The Volga carries great rafts of logs to the treeless south. Russia could make much more use of its forests if it had better transportation and more wood-working plants.
3. Location
   Location of forest area on map. Practically the entire stretch from Leningrad to the Pacific is in timber. What is this distance from east to west in miles? Find descriptions of the forests, the long cold winters, the marshes and mosquito plagues of summer.
4. Exports
   In peacetime the world's greatest lumber shippers reported net exports as follows: (Net exports equal total exports minus imports.)

U. S. S. R.	1974 million board feet
Finland	1926
Canada	1750
Sweden	1579
United States	781

What other products besides lumber might reasonably be expected to come from these forests? Examine, if possible, the lists of exports for each of these foreign countries in a Foreign Commerce Yearbook to decide this. The U. S. S. R. and the

U. S. A. are the only countries listed which do not export a great quantity of paper pulp and newsprint. Before you have completed your study of Russia you may be able to explain why. You already know reasons why the United States does not export paper pulp.

5. Lumber ports
   Which of the three Russian lumber ports might one expect to have the longest ice-free season? A lake to the east helps bring logs to the river Neva. In what ways does the site of Leningrad remind you of that of New Orleans? In what ways is it very different? It cost very heavily to get the stone for the fine buildings which were erected. Why?
6. Handicaps
   Suggest handicaps which nature has placed on most of this forest region which make it unwise to clear it for farm land. One of the handicaps you may reason out by examining a map. The others will require much reading before you find all that you wish to know.
7. Fur exports
   The U. S. S. R. is one of the world's greatest fur exporters. Find, if possible, some of the furs which we buy from her. Not all of the furs come from forest areas. You may need to talk to someone who knows much about furs.

C. Farm lands

1. Percentage of crop land
   Although Russia is the largest country in the world and has more people to feed than any other countries except China and India she has a very small percentage of her land in crops. Let us make a graph to show the use of Russian land. Make a bar one inch wide and 10 inches long to represent the entire area of the U. S. S. R. Each inch of this bar will equal approximately 500,000,000 acres, as the area of U. S. S. R. is 8,176,054 square miles or 5,232,674,560 acres. (These figures do not include the small Baltic countries.) Color yellow slightly more than three fifths of one inch on this bar to represent the acreage that is sown to crops each year. Mark off 4 inches of the bar and cover with

green dots to represent trees; mark another inch brown to represent the tundra.

2. Climatic handicaps
   Consult a rainfall map to see how farming is handicapped by lack of rain. Even the Ukraine, the best farming section, has less than 25 inches yearly. Consult your text to find out the length of the frost-free season. Winters in European Russia are not as severe as they are in the same latitudes in Canada. For example, January in Winnipeg, Canada, (49 degrees 53 minutes north) averages 4 degrees below zero, while in Moscow (55 degrees 46 minutes north) the January average is 12 degrees above zero. Notice the distance of each from the ocean to the west and the topography of the land which the westerly winds blow over to reach the two interiors. Moscow's winters more nearly resemble those of Duluth. Iowa's January average is about 20 degrees above zero in the southern part of the state and 17 degrees above zero in the northern part.
3. Advantage of rich soil
   Much is said about the rich black soils of the Ukraine and sections just east of the Ukraine. Are you reminded of our Iowa soils? The Ukraine was not glaciated, however. But it has had the benefit of thousands of years of decayed grass as have our Iowa prairie soils.
4. Crops
   a. Statistics from the U. S. S. R. are not available every year. The latest figures show how her main crops rank in acreage.

Wheat	91 million acres	Sunflowers	8 million acres
Rye	58	Corn	8
Oats	45	Cotton	5
Barley	20	Flax	5
Potatoes	18	Sugarbeets	3

   In addition to these crops Russia plants about 25 million in grass and other forage crops. There are more than 900 million acres in permanent pasture. Why is much of the permanent pasture poor? With what part of the United States would you compare it?

b. Wheat

(1) Russia is the only European country which grows spring wheat. It has about twice as many acres in spring wheat as in fall-sown or winter wheat. Russia's winter wheat lies closer to the Black Sea area than does the spring wheat. What states in the United States grow spring-sown wheat? Which wheat does Kansas have?

(2) In some years Russia has large amounts of wheat for sale, in other years very little. Compare with the Dakotas and Nebraska. Are the reasons for the great variation in yield in any way similar?

(3) Yields in Russia are rather low, as they also are in the United States. Suggest reasons in both cases. Rye lands extend farther north than wheat lands.

c. Corn

Russia's corn is mainly grown in the Ukraine. Consult the rainfall and temperature maps in your text and any reading material you are able to find to explain why corn does not do well farther east. Often one sees fields of sunflowers and corn side by side. For what are the sunflowers used?

d. Cotton

At the present time the U. S. S. R. is growing all of the cotton it needs in its factories. Find on your maps the city of Tashkent. The rainfall there is less than fifteen inches. Under what system do you think cotton can be grown there? Another cotton area is near the Caucasus.

e. Flax

5. Ownership of farms in the U. S. S. R. is very different from that in Iowa. Investigate the management there if possible.

6. Livestock

What animals use Russia's pasture land? Only one other country in the world (Australia) has more sheep than the U. S. S. R. Only two countries (India and the United States) have more cattle. Which pastures are used by camels? By water buffalo? By reindeer?

D. Manufacturing districts

A manufacturer needs power, raw materials, markets, labor, and transportation facilities. Let us examine each of these to find Russia's prospects of becoming the great manufacturer she wishes to be.

1. Power

a. Coal

Investigate the world's coal-producing countries to find those which rank high in tons mined annually. Use the World Almanac in searching for figures. Locate on a map the Donets Basin coal field and the Kuznetski (54 degrees north, 87 degrees east) field, a very large one. Another small field of poorer coal lies south of Moscow. Notice the number of cities in the Donets region. It is the chief manufacturing section of Russia. (Note: The city of Moscow is well worth study. Moscow industrial district uses Donets coal as well as its own. At Kuznetski a new manufacturing district is springing up.)

b. Petroleum

The U. S. S. R. ranks next to the United States in oil produced. Its production, however, is only about one tenth as much as ours. Note the location of the chief fields. What handicaps has Baku as a port? A pipe line runs to Batum. In what way is Batum's location better for oil shipments? If gasoline were to be shipped by a water route to Moscow what rivers would it use? Could this shipment go on throughout the year? Examine all of the material you can find on the Volga and the canal which connects it with Moscow.

c. Wood and peat

Some sections of the U. S. S. R. make use of these fuels for power. Which sections?

d. Water power

Russia's most famous hydro-electric plant is near Dnepropetrovsk on the Dnieper River. The dam was blown up in 1941 by the Russians. Why?

2. Raw materials

a. From forests

What factories would use them? Where are these factories most likely to be located?

b. From farms

List factories which use raw materials from farms. Explain why many of these factories are in southwestern Russia. Much farm machinery is made at Kiev, at Kharkov, and at Stalingrad. Would any of the reasons for manufacturing farm machinery in Chicago and Waterloo apply to these Russian cities?

c. From mines

The U. S. S. R. is well supplied with many kinds of minerals in addition to coal and petroleum.

(1) Iron ore

These figures give the rank of the chief iron-ore mining countries in a recent year:

United States	52 million tons
France	33
U. S. S. R.	26
Sweden	14
Germany	13
United Kingdom	12

Two centers of iron-ore mining:

Krivoi Rog in the Ukraine not far west from the Donets coal basin.

Magnitogorsk in the south Urals, bringing coal from the Kuznetski field to use in its blast furnaces and steel mills. On your map measure the distance this coal is hauled. The cars load iron ore for their journey back to Kuznetski. Suggest several reasons why Russia needs much steel.

(2) Manganese

Russia is one of the world's important producers of manganese. The United States has always bought large quantities from Russia. For what purpose? What route would you suppose the manganese follows to the United States? Of course you will need to know where it is mined to be able to figure this out.

(3) Other minerals

Make a list of all the other minerals you find Russia credited with.

3. Markets
   a. What markets will Russia have among her own people? Consider how many people there are in Russia.
   b. Consider the great distances and the need for railroads and bridges to carry goods to all parts of the country.
4. Labor
   Russia has enormous man power but only recently has expanded its manufacturing. A definite program for training labor has been laid out.

II. A glance at Russia's history

A. Russia behind the rest of Europe
   For centuries European Russia was more Asiatic in its customs than it was European. Only after Peter the Great came to the Russian throne did the country begin to make real contacts with western Europe.
   1. Peter the Great (1682-1725) helped Russia take on European ways.
      How did Peter find out about western Europe?
      Find out how he tried to induce his people to take on western ways.
      What was the point of moving his capital to the the city we now call Leningrad?
   2. Even though Peter and some other rulers after him made these efforts, Russia remained a backward country for a long period. She had—
      a. A very despotic government headed by a czar.
      b. A small class of rich nobles who had large estates where the serfs worked part time.
      c. A very large class of poor peasants who could not move from one part of the empire to another without permission
      d. No middle class such as we have here.
      e. A vast territory with poor transportation and commerce.
      Try to find out something of how the poor peasants lived. The story *Katrinka* will help you even though her family was better off than many peasants. Russia in the 19th century was something like France in the 15th.
      Russian serfs were not emancipated (freed) until 1861. Then they were free to move as they

pleased so long as they paid their taxes. When you know these facts it is easier to understand why Russia until lately has made little progress in manufacturing and in other lines.

B. The Soviet Union

During the World War Russia overthrew the Czar and formed a union of its many states. Later the states set up a system in which all land, forests, and mineral resources are owned by the government.

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SECTION VII

UNITS ON ASIA, SOUTHWEST PACIFIC, AFRICA, LATIN AMERICA

Units on Asia, Southwest Pacific, and Africa

I.	China	4 weeks
II.	Japan	2 weeks
III.	India	4 weeks
IV.	The Southwest Pacific	4 weeks
V.	Africa	6 weeks

Units on Latin America

I.	Transportation in Latin America	2 weeks
II.	Argentina	4 weeks
III.	Chile	3 weeks
IV.	The Andean Countries	4 weeks
V.	Brazil	4 weeks
VI.	Caribbean America	4 weeks
VII.	Mexico	4 weeks
	A Unit on United States and World Relations	4 weeks

Objectives

I. Major geographic understandings

A. Asia, Southwest Pacific, Africa

1. The Far East (China and Japan) is the home of the Mongolian race. These overcrowded countries have remained agricultural throughout the ages. Their people have been called "Farmers of Forty Centuries." The small amount of plow land and the huge number of people to be fed has resulted in intensive agriculture. For ages manufacturing was limited to handiwork in the home. Only recently has the factory type been introduced and even now but a small per cent of the people are thus em-

ployed. A low standard of living prevails throughout both countries.

2. In China and Japan are climates and soils simliar to those in certain parts of the United States, yet the utilization of these resources is very different. Thus we see that man may choose to use the same natural resources in different ways.
3. India is a large, tropical country whose great problem is to provide food for hundreds of millions of people. Her wealth of water power and minerals have been little developed. Many internal problems of education, religion, caste system, and government have prevented progress and a low standard of living prevails.
4. The tropical sections of the Southwest Pacific and Africa are the source of many raw materials which middle latitude countries need but cannot grow. Foreign capital has developed many great plantations and trade has increased rapidly. A wealth of minerals needed by modern industry is obtained from these lands.
5. New Zealand and southern Australia duplicate in climate and other resources various sections of the United States. Their sparse population and large areas of fertile land enable them to be large exporters of foodstuffs and raw materials.

B. Latin America

1. Most of Latin America is inhabited by mestizos (Spanish word meaning people of mixed race)—Spanish-Indian in Mexico, Central America, and South America outside of Brazil; Portuguese-Indian and Portuguese-Indian-Negro in Brazil; Spanish-Negro in the West Indies. People of mixed race with their darker skins are far better able to work and live under a tropical sun than are most white people. Latin America is largely within the tropics. The small section which lies outside the tropics is the home of the majority of the white people who live in South America. Latin America through its decided absence of racial prejudice is contributing to the world one solution of race problems.
2. Latin America differs markedly from the United States and Europe, not only in natural environment and the associated ways of living, but also in cul-

ture. In Latin America Spanish or Portuguese culture was superimposed upon Indian culture. In Mexico, Central America, and Peru there was an Indian culture far more advanced than that of Indians in the territory which later became the United States.

3. Latin America is in the pioneer stage of development of its great wealth of natural resources. Much of South America is approximately in the stage the United States was in ninety years ago—frontier country, sparsely populated, with poor transportation facilities except by water. It has room for many more people in contrast to Europe and Asia, the two overcrowded continents.
4. Latin America contains large areas of good land suitable climatically for abundant yields of a great variety of crops. It has the capacity to support a greatly increased farm population. Only in its few small areas of desert and semi-arid land and in the higher mountains is it incapable of supporting more people than at present.
5. Surprising to many people is the progress in manufacturing which the larger countries of Latin America are making. There is an abundance of mineral, forest, and agricultural raw materials and of power resources. The recency of the development enables manufacturers to take advantage of the latest technological improvements in machinery and in factory set-up without having to scrap expensive old machinery. There is gradually rising an industrial group (a so-called middle class) in Latin America.
6. The United States buys from Latin America tropical products which cannot be grown in our middle latitudes; out-of-season fruits from South America's middle latitudes due to the reversal of seasons; minerals of which we have no deposits; minerals and other products which we produce but not in sufficient quantities. Latin America's purchases from us are chiefly machinery and other manufactures.
7. Latin America has many competitors in supplying the world with raw materials. Other tropical lands have carried native plants away from Latin America and developed large plantations.

C. The United States and World Relations

1. The United States is not self-sufficient. It needs commodities from many parts of the world and in order to pay for them must sell goods and services.
2. The United States carries on trade with—
   a. Regions which differ from it in climate
      (Furs from Canada, bananas from Central America, rubber from Malaya; oranges and rice to Canada, cotton to Britain)
   b. Regions which differ from it in forest resources or mineral resources.
      (Tin from Malaya, nickel from Canada, mahogany from Brazil; petroleum to Britain, pine and spruce to Britain)
   c. Regions which differ from us in industrial development.
      (Wool from Australia, hides from the Argentine; sewing machines to the Belgian Congo, electric refrigerators to the Argentine)
3. Modern transportation and communication have drawn the various parts of the world so close together that we are realizing how necessary it is to develop better international relations.

D. Cumulative understandings

1. In all countries of the world man's occupations are closely associated with the natural resources of the region in which he works. The world pattern of occupation ties up with the world pattern of population. For example, the most densely populated regions of the world are of two types:
   a. Highly industrialized areas where supplies of power are available and where waterways facilitate cheap transportation for bulky raw materials
   b. Long-settled agricultural areas in the tropics or sub-tropics where an extended hot season permits abundant enough production to support a dense population with a low standard of living
2. Knowledge of laws of nature basic to geography
   a. Relation of rainfall to surface features, distance from the sea, wind direction, temperature, and air pressure. For example, rainfall is heavier on the windward side of mountains than on the

leeward side, rainfall decreases as distance from the sea increases.

b. Relation of temperature to latitude, altitude, mountain barriers, distance from large water bodies, wind direction. For example, temperature decreases as altitude increases, sea influence moderates temperatures because water heats and cools more slowly than does land.

c. Relation of native vegetation to temperature, rainfall, slope, and soil. For example, grass predominates in semi-arid lands, forests grow in regions of heavy rain and in regions of moderate rain if temperatures are low enough to reduce evaporation.

d. Relation of soil to bed rock, to slope, to climate, to vegetation, and to transporting agents. For example, soil forms slowly upon the more resistant rocks (granite, basalt, marble, slate), the steeper the slope the thinner the soil cover.

II. Map Reading Abilities

A. To read altitude and latitude and from the combination arrive at comparative temperatures

B. To read a rainfall map and interpret it in relation to surface and to the prevailing winds

C. To read a vegetation map and interpret it in relation to a rainfall map

D. To read political boundaries on a physical-political map and to be able to distinguish those following rivers or divides

E. To trace trade routes over which commodities move to and from the United States

F. To name and locate the twenty republics of Latin America

G. To name and locate the capitals of the larger republics —Brazil, Argentina, Bolivia, Mexico, Peru, Colombia, Venezuela, and Chile

H. To name and locate the four cities of Latin America of more than 1,000,000 population—Buenos Aires, Rio de Janeiro, Sao Paulo, Mexico City

I. To name and locate the five cities of Latin Amer-

ica of 500,000 to 1,000,000—Santiago, Montevideo, Havana, Pernambuco, and Rosario

J. To name and locate ten Asiatic cities of more than 1,000,000—Tokio, Shanghai, Osaka, Peiping, Tiensin, Nagoya, Kyoto, Hong Kong, Nanking, Kobe

K. To name and locate two Australian cities of more than 1,000,000—Sydney, Melbourne

L. To locate the one African city of more than 1,000,000—Cairo

M. To name and locate the most important rivers and mountains

N. To prepare maps which will aid in discussion of problems raised

III. Abilities in Use of Statistics and Graphs

A. To gather production statistics, export and import statistics, and calculate consumption

B. To make multiple-unit and bar graphs independent of directions from the teacher

C. To begin the use of the running line graph which introduces the time element

D. To begin the use of circle graphs (sometimes called pie graphs) which entail the use of a protractor

UNITS ON ASIA, SOUTHWEST PACIFIC AND AFRICA

Unit I— China

Unit Objective

China is one of the larger countries of the world, but much of the interior is a desert plateau which supports a sparse population of herders. The eastern part, known as China Proper, is a land crowded with people most of whom are engaged in agriculture. The rich alluvial plains of the large rivers support the greatest population density. Major attention is turned to the production of food crops. In the southern half of China Proper, with its moist tropical and subtropical climates, large rice crops are raised. In the northern half with its shorter summers, wheat and giant millet and soy beans are the crops. To increase the arable area, many hillsides have been terraced. To make use of some of the poor soil areas and rough land in the south, tea bushes, mulberry trees for the silk crop, and tung oil trees are grown. Although the country has rich supplies of a variety of minerals, mining and manufacturing are

little developed. Greatly handicapped by lack of roads and railways, commercial enterprises must depend chiefly upon rivers and canals and upon human porters and caravans.

Suggested Teaching Procedures

I. Likeness to the United States

A. Size

In some ways it should not be difficult for us Americans to understand some of China's problems. In the first place China is a very large country (4½ million sq. mi.). Compare it with our own both in distance from east to west and in area.

B. Climates

In the second place it has many of the same climates and many of the same crops that we have. In the southeast near Canton there is a large section very much like the Miami section of Florida, entirely frost free and humid, that has abundant rain. The large area near Shanghai is like the Carolinas and Georgia in climate. In the northeast near Peiping is an area like Iowa. The average temperature there is almost exactly the same each month as that of Clarinda, Iowa. The average rainfall is less. Clarinda averages 33 inches and Peiping has 24 inches. Northwestern China has great deserts not unlike Nevada. In the central section of China are thousands of square miles of mountain and plateau which support very few people. Recall the western interior of the United States.

C. Differences in land use

As you study China try to make comparisons with sections of our own country and be sure to notice that an old, densely populated region such as eastern China may use its land in a very different way from a new, moderately populated country such as the United States. Some one has written a book on China and Japan called "Farmers of Forty Centuries." What would you substitute for the "Forty Centuries" if you were writing of Iowa? In this book the writer pointed out that the soils are probably as good in China today as 40 centuries ago. What sort of claim could we make about Iowa soil?

II. Densely populated China

A. China Proper

We hear most about "China Proper," an area of two million square miles with a population of 400,000,000. Take your map and trace around the basin of the Hwang Ho, the Yangtze, and the Si Kiang and you will know China Proper's location. Of course you must understand the difference between a river basin and a river valley in order to do this. Which of these river basins is the largest? These three basins give the divisions you often see mentioned—North China, Middle China, South China.

B. West China

To the west of China Proper lie Tibet, Mongolia, and Sinkiang (Chinese Turkestan). They add more than a million and a half square miles of territory but only about 10,000,000 people.

C. Relation to rainfall

Lay side by side a population map and a rainfall map of China. What change takes place in population density as you go west, let us say from Shanghai? What change takes place in rainfall? Now look at the map showing surface. What change takes place there? These maps show two reasons why there is less opportunity to make a living by farming as one goes west. In the east it is said that there are areas where 3,000 people secure their living by farming one square mile.

III. Farming in China Proper

A. Southeastern China's chief cereal is rice. The rice-growing area extends as far north as 35 degrees north latitude. Examine your map to see which large, well known cities of China lie in the rice-growing area? The deltas and flood plains of two of China's large rivers furnish some of the best rice lands. Why is it advantageous to have rice fields near rivers? Read to find out how rice is planted and cared for. A rice plant looks a great deal like an oat plant. Can you imagine an Iowa farmer transplanting an oat field? We Iowans need to revise our thinking about farming when we consider China. We need to remember that in China—

1. Labor is very, very cheap (twenty-five dollars per year in agriculture).
2. Most of the farm work is done by hand.
3. Land is expensive.
4. Two crops per year can and must be gathered from many of the farms.

A farmer might have no more than two and a half acres of land for a family of five. In the extreme south he may take off one crop of rice and immediately plant another. Toward the northern edge of the rice region he may plant rice as a summer crop and barley or wheat as a winter crop. Rice needs irrigation. How will that be done? Digging canals on a delta is not difficult. The banks of canals are lined with mulberry trees. Why? On hillsides in southern China are tea bushes, mulberry trees, oranges and other fruit trees. On land suitable for cultivation, yet not low enough to irrigate, cotton, beans, peanuts, barley or wheat are grown.

B. In North China wheat occupies most of the crop land. Millet, soybeans and grain sorghums are important foods also. There may be tens of thousands of people in this region who never eat rice. Noodles made of wheat flour take the place of rice. From where did Americans get soybean seeds to begin our planting of that crop? Find out ways in which Chinese make use of soybeans. Would soybeans be a good crop in rotation with the others mentioned?

IV. Transportation problems

It is stated frequently that poor communication has hampered China for centuries. Let us look at the difficulties.

A. Compare the railroad mileage of China with that of other large countries.

United States	235,064
U. S. S. R.	52,425
Canada	43,128
Brazil	20,711
Australia	28,119
China	6,219

Arrange these six large countries in order of size. Prove order. In proportion to its size which country is most poorly equipped with railroads? Iowa has

10,000 miles. Compare with China. Consult your map to see if most of the railroads are in China Proper.

B. China had between 40,000 and 50,000 miles of automobile roads in 1930, most of them unpaved. In that same year the United States had 3,000,000 miles of highway of which 126,000 were paved. If you study your surface map two things should tell you that China's highways are mainly in the eastern part of the country. A road map shows that most roads lie in the Peiping and Shanghai districts. Why would road building be easier in North China? Would as many bridges be required?

C. Much of China is still served by sedan chairs, two-wheeled carts, wheel barrows, and human porters. In a country as densely populated as China, is it possible to spare much land to grow feed for horses and mules?

D. Waterways carry the largest amount of Chinese freight. Try to find out how far steamers can go upstream on the Yangtze. Steamboats ply even through the rapids today. All of China is said to have two hundred thousand miles of canals. No other country in the world has as many. What purposes do the rivers and canals serve besides transportation? Holland is called "the gift of the Rhine." What might the region about Shanghai be called?

In 1937 there was a terrible flood in our Ohio and Mississippi valleys and thousands of families were made homeless. The Chinese people sent more money to the relief of Americans than any other country except Canada. Why would they be likely to appreciate what such a calamity means?

E. Summarize the effects of poor transportation in a large country.

V. The little used coal of China

There are only two countries in the world which possess more coal than China.

United States	2,892 billion tons
U. S. S. R.	1,200
China	1,012

The world's leading coal miners in 1937 were:

United States	451 million tons
Germany	371
United Kingdom	244
U. S. S. R.	128

China mines only about 26 million tons per year. Why so little use of a rich resource? Most of our coal is used for manufacturing and railroads. Is China a manufacturing nation? Would there be any reason for China's using as much coal for heating as we do?

VI. Special reports

A. Where is the Burma Road and what does it mean to China? There is an excellent map and description of the road in the *National Geographic Magazine,* November, 1940.

B. More than half of the tungsten the United States imports comes from China. It is mined south and west of Chungking. Why do we need tungsten?

C. Tung oil is our largest import from China. Look up uses of tung oil. Where is the United States growing tung now?

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Unit II—Japan

Unit Objective

A group of mountainous islands with small coastal lowlands and carefully terraced mountain slopes supports a very large agricultural population. A climate similar to that of southeastern United States enables Japan to grow two crops per year in its southern sections. Coal and water power and very cheap labor have been the basis of a rapidly growing manufacturing industry which exists chiefly on imported raw materials. The low wages paid to factory hands, the scarcity of land fit for agriculture, and the rapid increase in population result in low standards of living.

Suggested Investigations

I. Japan, the Rising Cotton Manufacturer

A. Japan has recently built some modern cotton mills and has increased its production of cotton cloth until it has become one of the world's leaders. Investigate the following table:

Production of Cotton Piece Goods

United States	990,000 tons of cotton cloth
Japan	490,000
United Kingdom	350,000
India	330,000
U. S. S. R.	260,000
Germany	220,000

1. Can Japan raise cotton? Investigate the latitude of Japan and compare with the latitude of the Cotton Belt of the United States. Investigate rainfall maps and compare the rainfall of the two regions.
2. Does Japan raise cotton? Investigate your textbook and find out whether Japan raises cotton. How do you account for the fact that although her climate is suitable for cotton she raises very little, only 2,000 acres. Japan buys large quantities from the United States. Raw cotton is by far Japan's largest import.
3. Why does Japan devote most of her crop land to food crops? Look at the surface map. Only about one eighth of the land is really level enough for crop production, but by terracing lower slopes some extra rice land has been added. Slopes too steep to plow have been planted in trees (mulberry and fruits) and in bushes (tea). Consider the number of people to be fed and the 16,500,000 acres which includes all kinds of land in crops. Compare with Iowa's 22,000,000 acres in crops and the number of people who live in Iowa.
4. Chief crops of Japan:

Rice	7,985,000 acres
Barley	1,882,000
Wheat	1,797,000
Mulberry trees	1,422,000
Soybeans	817,000
Sweet potatoes	715,000
Beans	642,000
White potatoes	425,000
Radishes	383,000
Oats	340,000
Tea	100,000
Other crops	3,269,000

Add the area in crops in the above table. How does your total agree with the acreage of lands in crops? How do you explain more acres of crops than there is land? Consider the fact that some land has a rice crop in summer and wheat or barley in winter. Why is it possible to grow two crops on the same land in one year? Is this double cropping another evidence of intensive agriculture? The southeastern United States has the same climate as the southern

two thirds of Japan. Why do we not practice double cropping?

5. Why does Japan weave so much cotton cloth when she does not raise cotton?
   a. Let us investigate the power for operating the mills. What do you discover about Japan's power?

The Leading Countries in Harnessed Water Power

United States	17,100,000 horse power
Canada	7,900,000
Italy	6,000,000
France	5,250,000
Japan	4,500,000
Norway	2,900,000
Switzerland	2,800,000

Are there other cotton weavers in this list which raise no cotton? There are also large cotton manufacturing industries in countries with little water power but much coal. Recall the large cotton mills of Manchester. In what country? Where does that country buy raw cotton?

   b. Labor supply

Most of the people of Japan make their living by farming and by fishing, but because of the great density of population and the small amount of agricultural land, many people must find other ways of making a living. For centuries their manufacturing was of the handicraft type in the home and small shops. Much of the handicraft work is still carried on, but some large modern factories have been built. There is such an abundance of labor that wages are very low. The Japanese who work in textile mills receive on the average 3 cents per hour and they work 10 to 12 hours per day. When these data were gathered United States textile workers were receiving an average of 42 cents per hour and were working 8 hours per day. What must the standard of living be where workers receive less than half a dollar a day?

   c. Market

The home market for cotton goods is very large. Why? Throughout how much of Japan would

cotton goods be satisfactory for year-around clothing? Japan has become a great exporter of cotton goods because she can undersell all other cotton-manufacturing nations. Why?

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Unit III—India

Unit Objective

India is a large, densely populated, tropical country where the transplanting of European ideas and capital has wrought many changes. The building of a good railway system has helped draw together a diversified country. India's great variations in surface and in climate were partial causes of the development of many separate native governments. Great differences in language and religion made the divisions more pronounced. Before the coming of railroads one section of this great land was so isolated from others that disastrous famines in one region could not be relieved, even though there were good crops in other areas.

The Ganges Basin rarely suffers famine. Its heavy summer rains and bountiful supplies of irrigation water from the melting snows of the Himalayas enable its fertile soils to keep from starvation one of the densest populations in the world.

Other areas with lighter summer rains and no adequate supply of irrigation water for the dry winter, support fewer people but are more likely to suffer from famine. The building of irrigation works has progressed to such an extent that today India irrigates more land than any country in the world. India is a nation of farmers who for centuries have spun and woven cotton in the home. Modern cotton mills now work up part of the cotton grown in India. Recently a modern iron and steel industry has been developed near Calcutta where coal and iron deposits lie close together.

Outline of Content

I. Population density

When we look at India on the map of Asia the whole map is on such a small scale that it is difficult for us to realize that India is half as large as the United States (1,575,307 square miles). Its entire population is about three hundred forty million. Compare with the population of the United States. What is India's density of population? That does not give a clear picture, however, as some sections are very crowded while others are sparsely settled. For example, the eastern province of the Ganges Basin, which is called Bengal, has a density of 646 to the square mile.

II. Crops of India

Rice	75,000,000 acres
Millet	66,000,000
Beans	52,000,000
Wheat	34,000,000
Cotton	22,000,000
Peanuts and other oil seeds	21,000,000
Corn	8,000,000
Sugar cane	7,000,000
Barley	7,000,000
Jute	2,880,000
Coconuts	1,500,000
Tea	750,000

Since all of India, save the upper slopes of the Himalayas, has twelve frost-free months, crops vary from place to place chiefly on the basis of the amount of rainfall and the possibility of irrigating waters. Where rainfall is heavy rice is the chief crop. Where wheat is grown it is a winter crop. It will not stand the excessive heat of

summer. In winter it has to be irrigated, but there is less evaporation of water in the cooler season.

With a rainfall map of India before you, look for regions which might be suitable for rice. What area of heavy rainfall would not be suitable for rice? Why? What sort of land is suitable for a crop that must have water standing on it while it grows? Look at the dot map of rice distribution in your text. Has your choice of areas agreed fairly well with it? Millet is an important food crop in India. There also is a giant millet which is like the sorghums (kaffir corn, milo maize) which we grow in Iowa. The grain is threshed from the broom-like head and cooked in much the same way as is rice. Does your text suggest it as a crop for wetter or for drier regions? Indians eat little meat even though they have many cattle. Cattle are work animals. What crop listed gives India a substitute for meat? Frequently certain varieties of this crop are referred to as "pulse."

India is the world's largest cane-sugar producer. Her annual crop is about 5,000,000 tons. All of this is consumed at home. How much sugar does this allow per capita? Our per capita consumption is about 100 pounds. India's sugar is low quality so her people are not getting as much sweetness per pound as we are.

What crops in the list would furnish India with substitutes for butter and lard? Little butter is produced in India and no hogs are listed in their census of livestock.

Our largest import from India is jute, raw or partly manufactured. For what do we use it?

A goodly share of our tea import comes from India. Investigate to see why all tea is produced in lands where labor is cheap. In Ceylon as many as twelve or sixteen crops of tea can be picked each year while in the Shanghai region of China, only four crops. Why the difference? One province of India, Assam, lying north and east of Calcutta supplies one half of the world's tea export. Tea plantations stretch from the valley of the Brahmaputra up the mountains to Darjeeling at an altitude of 7,000 feet. Darjeeling is a mountain resort to which many Europeans living in India go during the hottest, wettest months in the Ganges Valley. If the temperature at a place in the valley were 98 degrees at noon on a July day, what might one expect it to be at Darjeeling which has an altitude of 7,000 feet? (Temperature decreases 3 degrees for every 1,000 feet rise in altitude.)

III. Irrigation

India has a great amount of water in the rivers which rise in the Himalayas. Why? Name the rivers. These rivers never dry up in the dry season; therefore, many farmers can irrigate some of their land and raise a second crop. Without irrigation waters India could not support such a large population. No country in the world irrigates as much land as does India. Compare India with other large irrigators.

Land under Irrigation	
India	59,550,000 acres
United States of America	19,548,000
Egypt	5,520,000

IV. Cotton milling

India raises the second largest cotton crop in the world. More than half of her crop is made into cloth for her people; the rest is exported to distant lands. India ranks fourth among the cotton milling nations.

Refer to the table of cotton manufactures in the unit on Japan.

About 40 per cent of India's total cotton cloth production is woven in the home and in small shops by hand. The other 60 per cent is woven in modern factories, some of which are run by hydro-electricity.

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Unit IV—The Southwest Pacific

Unit Objective

The tropical lowlands of Malaya, the East Indies, and the Philippines, with their twelve frost-free months and abundant rain, once were entirely covered with broad-leaved evergreen forests. On the cleared lands a wide variety of crops is produced—food crops on the small plots of subsistence farmers and export crops on the large plantations established chiefly by foreign capital. Certain crops, some of them native to the area, and others introduced from distant tropical lands, have a virtual monopoly in world markets. Deposits of a few minerals much in demand in Europe and North America give additional impetus to trade. The long coast lines with many harbors facilitate communication, both coastwise and overseas.

The middle latitude areas of the Southwest Pacific, New Zealand, and South Australia are lands of sparse to moderate population producing grain and animal products far beyond their own needs. Most of this surplus goes to their food-hungry mother country, the United Kingdom.

Outline of Content

I. The tropical lands
  A. Malaya and East Indies
    1. Rubber

The world's rubber production in 1938 was 918,800 tons. Using the data which follow, figure what per cent of all the rubber produced came from southeastern Asia. As you work, examine your map to make sure what is included in the term "Netherlands Indies."

World's Chief Rubber Producers

British Malaya	365,404 tons
Netherlands Indies	324,674
Indo-China	57,910
Ceylon	51,992
Thailand (Siam)	31,648
Brazil	18,000

In 1900 Brazil produced about 26,000 tons of rubber. The hot, wet regions of Africa produced about 15,000 tons. The whole world's crop that year was 44,000 tons. The rubber then came from trees growing wild in the forests. When automobiles came into use and the demand for rubber increased, men started plantations. What did southeastern Asia have to offer to induce men to start great plantations there?

Read in any book which discusses rubber to see what sort of climate it demands. Then compare the data given below for Manaos, Brazil, and Singapore, Malaya, and see if both places seem to meet the needs of the Hevea tree from the standpoint of climate.

	Manaos, Brazil		Singapore, Malaya	
	Temperature		Temperature	
	Degrees	Rainfall	Degrees	Rainfall
January	80 F	9.2 inches	78 F	8.5 inches
February	80	9.0	79	6.1
March	80	9.6	80	6.5
April	80	8.5	81	6.9
May	80	7.0	82	7.2
June	81	3.6	81	6.7
July	81	2.2	81	6.8
August	82	1.4	81	8.5
September	82	2.0	80	7.1
October	83	4.1	80	8.2
Novemebr	83	5.5	79	10.0
December	81	7.7	79	10.4
		69.8 inches		93.0 inches

As you read in your text about plantations you will see that they demand much work. For what? How long during each year? Examine a population map of southeastern Asia to see what prospects for a labor supply it offers. If a given country had not enough labor is there a nearby country from which labor could be imported?

The rubber plantations are on lowlands. Examine your largest map of southeastern Asia to see how far the lowlands in these countries are from the sea. What advantage would being near the ocean

offer? In what form is rubber shipped to the market? Singapore, the chief rubber exporting point, is sometimes called "the Crossroads of the East." A crossroad of what routes? What advantages would its location offer for trade? What disadvantages in time of war? Be sure to notice its island location. Find a description of the city, if possible.

Java and Sumatra are the chief rubber producing islands of the East Indies. Where are their lowlands? Through what large ports might you expect their rubber to go? Much of the rubber grown in the Indies is on native holdings.

2. Spices

The world depends to a large degree on the Netherlands Indies for its spices. Using your text and an encyclopedia find out which spices grow there and from what sort of tree or shrub each comes. Can you find the name *Spice Islands* on your map? They are also called *The Moluccas.* Columbus was interested in a westward route to this rich spice trade when he ran into the West Indies.

3. Vegetable oils

A tree known as the oil palm is of great importance in Netherlands Indies and Malaya. We buy from the Netherlands Indies each year more than five million dollars worth of palm nut oil and palm nut kernels. For what purposes do we use these? Only one country, Nigeria, produces more of this crop than Netherlands Indies. Most of Nigeria's crop goes to Europe. Your encyclopedia may give you a description of the palm oil nut tree.

4. Minerals

a. Tin

The world looks to Malaya and Netherlands Indies for much of the tin it uses, as you may judge by the table below. There are different ways of measuring the output of tin. One way would be to measure the ore mined, but some ores are richer than others. The table below measures by tin content of the ore. The world output is 181,000 tons.

Tin production—measured in tin content.

Malaya States	51,725 tons
Netherlands Indies	27,755
Bolivia	27,211
Siam	17,325
China	10,422

What fraction of the tin output of the world came from Malaya and Netherlands Indies? Tin mining in these regions is largely in open pit mines on lowlands near the sea. Under what temperature conditions must men work? Would this be a dry heat?

The United States uses more than one third of the tin mined in the world. We have very little of our own. In 1939 we produced less than 100 tons and imported 70,000 tons. The chief sources of our import were:

British Malaya	46,785 tons valued at	$47,139,136
United Kingdom	10,698	10,000,000
Netherlands Indies	5,316	5,442,528

As you compare the two tables you see there must be something which needs explanation. The United Kingdom is not in the list of large producers. The United Kingdom has large tin smelters to which concentrated ore is brought from many places. We buy the products of the smelters.

We have built recently at Texas City, Texas, a smelter of our own and have made a contract with Bolivia to buy tin ore from her. Bolivia will concentrate it so that there will not be so great a bulk to move. At her present output could she supply our needs? For what purposes do we import such large quantities of tin? Write a short paper explaining carefully why the United States experienced a very severe tin shortage beginning in early 1942, and what we did to lessen our dependence on tin.

b. Petroleum

Petroleum is another important mineral produced in the East Indies. Consult the World Almanac to see how these islands usually stand among the world's producers. What countries

might one expect to buy their products if peace prevailed in the world?

In a year when the Netherlands Indies' total exports were valued at $522 million, rubber amounted to $163 million, and petroleum $75 million.

B. Philippine Islands

1. Population

The area of the Philippine Islands is 114,000 square miles. Compare this with Iowa's area. How many islands make up the group? Are we correct in calling them tropical islands? The population is given as 13,000,000. What is the density per square mile? Examine the color band map in your geography to see if this population could be evenly distributed. On which two islands do most of the people live? Is it safe to say that half of the surface is mountainous? Examine the figures of land utilization given below to see what fraction of all the land is in crops. Some of the most wonderful terracing of mountain sides to be found anywhere in the world has been done on the mountain sides of the island of Luzon in an effort to make more land for crops. You may find pictures and descriptions in your text. How could rice be grown on those high terraces? There are lowlands so crowded that hundreds of people get all their food, except fish, off one square mile of land.

2. Use of land

In the table of land utilization, notice the great variety of crops. Can you find seventeen which Iowa could not grow profitably because it does not have a long enough frost-free season? What fraction of all the crop land is in rice? What cereals that we grow in Iowa are not listed? In the Indies and Malaya rice occupies more ground than any other crop. Is it possible to grow two crops per year on land in the islands?

Land utilization in the Philippine Islands—

Total area	74,074,000 acres
In forests	42,377,200
In annual crops	7,704,500
rice	4,780,000
corn	1,756,300

sugar cane	569,800
sweet potatoes	194,400
tobacco	187,000
beans	23,300
peanuts	16,100
cotton	4,700
forage grass	6,800
In perennial crops	3,341,000
coconuts	1,607,800
bananas	230,700
mangoes	38,300
pineapple	11,900
papayas	9,900
oranges	9,600
other fruits	29,100
manila hemp	1,270,900
maguey	97,000
kapok	19,200
rubber	9,600
coffee	3,900
cacao	3,100

3. United States imports

In the spring 1942 Iowa farmers were urged by our government to grow more soybeans, and southern farmers were asked to grow more peanuts. Is there any connection between this and the items in the table below?

Chief United States imports from the Philippines in a year prior to 1942

Sugar	59 million dollars
Coconut oil and copra	41
Manila fiber	7

What bearing did the loss of imports of palm oil from the East Indies have on the situation? What are our chief uses of coconut oil? Is it ever used in foods? What are the chief uses of Manila fiber? What could be substituted for it?

II. Middle Latitude Lands

A. New Zealand

New Zealand can rightly claim to be the world's chief exporter of dairy products. See what figures you can find to support this claim. (Look back in the

syllabus to data on Denmark and the Netherlands.) What climatic advantages does New Zealand have for the dairy industry? How would New Zealand's climate compare with that of western Washington and Oregon? Can you suggest reasons why New Zealand can produce butter and cheese more cheaply than Iowa? Several countries produce more butter and more cheese than New Zealand. How can she rank so high as an exporter? In a year when New Zealand's exports of all commodities totalled $256 million, her export of animal products was as follows:

Wool	75 million dollars
Butter	67
Meats (frozen)	58
Cheese	21
Sheepskins and cattle hides	13

What fraction of all her exports were animal products? Seventy-six per cent of all her exports went to the United Kingdom. Why might you expect that?

B. Southern Australia

1. Location

In 1942 Americans began to learn much about Australia. How far did our ships travel to reach Sydney? What fraction of Australia lies south of the Tropic of Capricorn? As you begin this investigation what season of the year is it in Melbourne? If a man from the coast of North Carolina moved to Sydney, he would feel quite at home so far as climate is concerned. Notice on the population map of Australia how large a proportion of its people are in the south. Does it seem to you that the capital is in a good location? Could people from every division of Australia reach it easily by rail?

2. Australia in world markets

Australia is the world's chief wool grower and exporter. She has three competitors but no one of these exports half as much as Australia. The lands used by her 110 million sheep lie chiefly in what two divisions of the country? Suggest reasons why northern Australia would not be so well adapted for wool production. Look especially at

its latitude. Try to find a description of life on one of these sheep stations. It is said no other port in the world exports as much wool as Sydney. Wheat is Australia's second largest export. Only two countries exceed her as exporters. Which two? (Canada and Argentina). When you study Argentina you may be able to point out some characteristics which the two countries have in common. Would wheat from Australia come on the British market in the same month that wheat from Canada does?

Oranges from Australia might be found in British markets in July and August. They come from southwestern Australia and the Adelaide region. As in the Los Angeles district of California, they need irrigation in summer. Which months?

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Unit V—Africa

Outline of Content

I. Africa's rank among the continents:

A. Area, population, trade and transportation
Fill out the following table, then write a paragraph to show what you have discovered about Africa's trade and transportation in proportion to area and population.

Continents	Area in sq. mi.	Population: Total No.	Population: Per sq. mi.	1937 Foreign Trade-Value in $000,-000	Railroads miles	Highways miles	Airways miles
Africa				1,668	44,201	280,000	9,434
S. America				1,836	61,907	440,000	55,000
N. America				5,772	318,000	3,451,000	48,492
Europe excl. U.S.S.R.	2,116,934	398,709,909		15,332	178,709	641,000	137,000
Asia incl. U.S.S.R.	18,513,803	1,319,123,645		4,957	139,000	1,812,000	12,500
Australia				644	27,973	128,475	29,983
Antarctica							

B. Government

1. Self-government
Self-governing countries in each continent. Write

the names of the countries for which the initials are given.

Africa	N. A.	S. A.	Europe* (excl. USSR)		Asia (incl. USSR)	Australia
1. E.	1. C.	1. V.	1. A.	15. L.	1. C.	1. A.
2. E.	2. U.	2. C.	2. A.	16. L.	2. J.	
3. L.	3. M.	3. E.	3. B.	17. L.	3. S. or T.	
4. U.	4. S.	4. P.	4. B.	18. N.	4. I.	
	5. G.	5. B.	5. C.	19. N.	5. I.	
	6. H.	6. B.	6. D.	20. P.	6. T.	
	7. N.	7. P.	7. E.	21. P.	7. U.	
	8. C.	8. U.	8. E.	22. R.		
	9. P.	9. A.	9. F.	23. S.		
		10. C.	10. F.	24. S.		
			11. G.	25. S.		
			12. G.	26. U.		
			13. H.	27. Y.		
			14. I.			

*1937, before the Axis invaded other European countries.

Look up the area of the four self-governing countries in Africa. About what fraction of the area of Africa is self-governing? Work out the fraction for each of the other inhabited continents. The quicker way to calculate the fractions for Europe, North America, South America, and Australia would be to subtract the areas of the countries which are not self-governing from the area of the whole continent.

2. Governed by other countries
   Investigate the map of Africa and the textbook material to see what countries have colonies in Africa.

II. Slowness of development of Africa

1. Early Portuguese explorations along west coast of continent compare with dates of similar explorations along east coasts of the Americas. Compare with dates of early civilization in the northeast corner of Africa.
2. Natural features handicapping exploration and development of interior transportation
   a. Regular coastline
      Number of square miles of land for one mile of coastline:

Africa	1420
Asia	763

South America	689
Australia	534
North America	407
Europe	289

b. Few good harbors

c. Interruptions to navigation on rivers
Examine the Congo, the Nile, the Zambesi. How many cataracts or falls are there? Have railroads been built around any of these obstructions?

d. Great desert barriers
One fourth of Africa is desert. Why are deserts difficult to traverse?

e. Narrow coastal lowlands with steep climbs to the interior plateaus

3. State of agriculture
In all of Africa 167,000,000 acres are planted in crops. Compare with the cropped acreage of the United States, 413,000,000. Compare United States and Africa in size and in population. In which land are there more acres of crops per person? Why can one acre in Africa produce more than one acre in the United States? Think of the length of growing season. It is estimated that 6,249,000 square miles of Africa are capable climatically of producing crops. If even half of this area has suitable soil and slope for crop production, how many acres could ultimately be used for crops? How does the present cropped acreage compare with the possible cropped acreage of the future? Can Africa support more people than at present? As you study the various sections of Africa consider their possibilities for development. As you go along try to grade the various sections as to their future. Are there some areas for which you do not predict any bright future?

III. Equatorial Africa

A. Tropical Rain Forests

1. Location. Mark on an outline map of Africa:
Belgian Congo, south half of Nigeria, south half of French Equatorial Africa, Camerouns, Gold Coast, Ivory Coast, Liberia

2. Relation of this forest belt to heavy rains
   Examine the rainfall maps of Africa in your textbook.
3. Comparison of temperature in the equatorial forests with that of Iowa. Study the following table of average monthly temperatures:

	J	F	M	A	M	J	J	A	S	O	N	D
Des Moines	20	24	36	50	61	70	75	73	65	53	38	26
Brazzaville	80	80	80	80	79	76	72	74	77	78	78	80

   (4 degrees South, 15 degrees East.)
4. Forest products
   Investigate mahogany lumbering and the collection of wild rubber.
5. Products of the clearings:
   a. Plantation products for export
      (1) Cacao

Cacao Production	
World	722,000 tons
Gold Coast	253,100
Brazil	136,100
Nigeria	117,500
Dominican Republic	28,100
Trinidad	19,200

      (2) Palm oil
      Palm oil and palm kernels in terms of oil

Nigeria	661,000,000 pounds
Netherlands East Indies	475,000,000
Belgian Congo	247,000,000
French West Africa	135,000,000
Other French Africa	105,000,000
Malaya	103,000,000
Other British Africa	93,000,000
Portuguese Africa	45,000,000

   b. Food crops for home consumption
      Manioc, corn, peanuts, beans, bananas

B. Wealth of Water Power

1. Examine rainfall and surface maps to see why Equatorial Africa has many waterfalls and rapids
2. Statistics on water power. What are the possibilities for the development of manufacturing by electricity?

	Water Power	
	Developed	Undeveloped
World	60,000,000 H. P.	671,000,000 H. P.
Africa	175,000	273,825,000
S. America	1,100,000	74,000,000
N. America	26,000,000	77,000,000
Europe	27,200,000	74,000,000
Asia	5,400,000	148,000,000
Australia	139,000	2,000,000
In Africa		
Belgian Congo	70,000	130,000,000
Equatorial		
French Africa	.....	50,000,000
Camerouns	.....	18,500,000
Nigeria	6,000	13,000,000
Madagascar	4,500	7,000,000
British		
East Africa	6,200	6,700,000
Mozambique	.....	5,000,000

C. Mineral Wealth
   Copper in the Belgian Congo
   Routes by which copper is brought to the coast

IV. Africa's extensive grasslands
   A. Location
      N. Nigeria, N. French Equatorial Africa, Anglo-Egyptian Sudan, S. French West Africa, Tanganyika, Kenya, Rhodesia, Angola
   B. Wild life and the hunting industry
   C. Grazing industry and the export of hides and wool
   D. Crop production during the wet season
      Corn, cotton, peanuts, sorghums (Guinea corn and Kaffir corn)

V. Africa's tropical deserts
   A. Location—the Sahara, the Kalahari, Somaliland
   B. Area—one fourth of Africa
   C. Most important oasis—the lower Nile Valley. Review the study of Egypt made in grade 6.

VI. Africa's sub-tropics

A. Location—Morocco, Algeria, Tunis, Union of South Africa

B. Compare with the climate and crops of southern California

C. Mineral Wealth
Union of South Africa—gold and diamonds
North coast, Africa—phosphates for fertilizer, iron ore

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UNITS ON LATIN AMERICA: ARGENTINA, CHILE, THE ANDEAN COUNTRIES, BRAZIL, CARIBBEAN AMERICA, MEXICO

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References for the Latin American units are not given at the end of each unit as has been the case in previous units. Neither are the page references cited under each country. Instead a list of references for all Latin America is given. It is assumed that seventh and eighth grades have acquired facility in locating material through the use of the table of contents and the index.

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20 pamphlets on Latin American Republics, 5c each. American Nation Series.
20 pamphlets on cities of Latin America, 5c each. American City Series
25 pamphlets on commodities, 5c each. Commodities, Commerce Series.
Seeing South America, 25c.
Ports and Harbors of South America, 25c.
Seeing the Latin Republics of North America, 25c.
Loans exhibits of posters, maps, travel folders, flags to schools
For sale—three sets of pictures of South America

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Unit I—Transportation in Latin America

1. Recent interest of people of the United States in travel in Mexico, Central and South America
   a. Loss of travel opportunities in Europe and the Orient
   b. American search for new fields to visit
   c. Awakening of concern about our southern neighbors with reference to—
      (1) Their ability to supply us with critical raw materials
      (2) Their dependence upon us for manufactures which they formerly obtained from Europe
      (3) Their attitude toward hemisphere defense
   d. Exchange of students and teachers between North and South America
   e. Tours of good will arranged by American business men, women's clubs, various foundations
2. Seaways
   a. Connecting the United States with Latin America
      (1) New York to the west coast of South America via the Panama Canal

(2) Detailed study of the Panama Canal

Reference: Nicolay, Helen: *The Bridge of Water.* Appleton-Century, 1940, $2.

(3) New York and New Orleans to the east coast of South America

b. Connecting Latin American countries with each other

Examine a railroad map to see how few railroads there are which cross international boundaries; therefore how great the dependence upon seaways is.

c. Seaports

(1) Many small seaports

Located along regular coastline with no good harbors. Dependence of many seaports of the west coast upon lighters to transfer cargo from shore to ships anchored out in the roadstead.

(2) A few large seaports on indentations

3. The Pan American Highway

a. Location (To be marked on an outline map of South America and of Mexico and Central America after careful consultation of maps in the textbook and atlas.)

(1) Mexican section

Laredo, Texas (on the Rio Grande River) to Mexico City; 766 miles of paving opened in 1936

Mexico City to Mitla (a short distance south of Oaxaca); 365 miles all-weather highway. Paving is going forward.

Mitla to the Mexican-Guatemalan border; mostly ox trails through difficult mountainous country. Work speeded up in 1942.

(2) Central American section

Through the capital of each country except Tegucigalpa, Honduras, about three fifths is all-weather highway in discontinuous sections.

Panama City across the isthmus to Colon; paved highway under construction

(3) South American section

Beyond the Panama Canal to Chepo, Panama—40 miles of surfaced highway

No highway as yet through the jungle beyond Chepo. Cars are ferried from Colon, Panama Canal Zone, to Cartagena, Colombia, or to LaGuaira, Venezuela

LaGuaira to Caracas, Venezuela, thence to Bogota, Colombia, over the Simon Bolivar Highway—1,120 miles, most of which is all-weather highway surfaced with stone

Bogota to Quito, Ecuador—841 miles single lane of large stones with earth shoulders on either side

Quito to Guayaquil, Ecuador, ferry across the bay to Peru

Guayaquil Bay to Lima, Peru

From Lima, alternative routes

Route 1—along Pacific coast to Valparaiso, Chile; to Santiago, Chile; through Uspallata Pass (13,120 feet altitude and free from snow only six months of the year); to Mendoza, Argentina; to Buenos Aires

Route 2—eastward from Lima to Cerro de Pasco, to Cuzco, to Lake Titicaca; by boat across the lake or by highway on the lake shore; thence to LaPaz, Bolivia; to Oruro, Sucre, Potosi; to the Argentine border; southward to Cordoba; thence to Buenos Aires

From Buenos Aires to Rio de Janeiro—

Ferry across the Rio de la Plata to Montevideo, Uruguay

From Montevideo, alternative routes

Route 1—north to Ascuncion, Paraguay, to Sao Paulo, to Rio de Janeiro

Route 2—northeast to Porto Alegre, Brazil, to Sao Paulo, to Rio de Janeiro

b. History of the highway

Proposed in 1928 at the Pan-American Congress in Buenos Aires

First survey required nine years

By three Brazilian engineers in two light automobiles

Left Rio de Janeiro April 16, 1928, reached Panama May 12, 1932, arrived in Washington, D. C., October, 1937

Distance traveled—16,000 miles
3,450 miles on ox-cart trails
2,276 miles cut through forest, swamp, and mountain fastness
8,274 miles on improved roads, but no pavement until they reached northern Mexico and the United States
Gasoline consumption by two cars—4,022 gallons
Tire consumption by two cars—56 tires and 168 inner tubes

c. Notes on the journey of the first American who drove to Buenos Aires
Left Los Angeles February 4, 1939; arrived at Valparaiso on August 27, 1939.
Date of arrival at Buenos Aires not given (Los Angeles to Buenos Aires 14,500 miles).
"I drove through sections which the Pan-American Union told me were impassable. In the jungles of Nicaragua I made forty miles in five days, on one day only six miles. I did not see a single wild Indian or a dangerous animal. I did not see a single snake on the whole trip. The most savage things I ran into were bees."

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4. Pan-American Airways

a. Beginning of Pan-American Airways, Inc.
Mail service between Key West, Florida, and Havana, Cuba, (90 miles) started on October 19, 1927

b. Growth in twelve years (1928-1941)
The largest marine air transport company in the world
By 1934 operation of giant flying boats (clippers) on scheduled runs over 21,000 miles of airways serving 147 cities in West Indies, Mexico, Central America, and South America
In 1937, operation of clippers between San Francisco and Hong Kong

In 1939, operation of clippers between New York and Europe
In 1941, operation of stratoliners on the South American runs
In December 1941, operation of clippers between Miami, Natal (Brazil), and Leopoldville (Belgian Congo)

c. Main line (To be marked on outline map of South America and North America. Draw straight lines from station to station. Begin at Miami.)

Miami, Florida
Havana, Cuba
Merida, Yucatan
Mexico City
San Salvador
Guatemala City
Tegucigalpa, Honduras
Managua, Nic.
San Jose, Costa Rica
Cristobal, Canal Zone
Cali, Colombia
Quito, Ecuador
Guayaquil
Talara, Peru
Lima
Arequipa
Arica, Chile
Santiago
Cordoba, Arg.
Buenos Aires
Montevideo, Ur.
Porto Alegre, Brazil
Florianopolis
Santos
Rio de Janeiro

Alternative routes from Rio
1. North to Para
2. Along coast to Bahia, Pernambuco, Natal, Para

From Para continue to
Cayenne, Fr. Guiana
Paramaribo, Dut. Guiana
Georgetown, Br. Guiana
Port of Spain, Trinidad
San Juan, P. R.
Port au Prince, Haiti
Nuevitas, Cuba
Miami

d. Branch lines
(1) Buenos Aires to Ascuncion, Paraguay; thence to Florianopolis, Brazil
(2) Cordoba, Argentina to LaPaz, Bolivia
(3) Arica, Chile to LaPaz
(4) Para, Brazil to Manaos, Brazil

5. Inland waterways in South America
a. Amazon and its tributaries—the longest mileage of navigable waterways of any river system in the world. Compare with the Mississippi River. Ocean-going vessels (20 foot draft) can reach

Baton Rouge, Louisiana, while on the Amazon they can go to Iquitos, Peru.

b. Parana-Paraguay rivers
River steamboats go to Ascuncion all year, can reach Concepcion in time of high water. Ocean vessels can go to Rosario

c. Rio Sao Francisco—river steamboats ply above the falls.

d. Lake Titicaca—the highest lake in the world on which steamboats ply.

6. Railroads of South America

a. Length of railroad lines. See table of railroads of each continent given in the unit on Africa. Railroads in the various Latin American countries

	Miles of railroads	Miles of railroads per 1000 square miles
U. S. A. For comparison	260,440	88.9
Iowa	9,042	161.0
Argentina	24,805	23.0
Brazil	20,182	6.1
Mexico	14,439	19.0
Chile	5,553	19.4
Peru	2,810	5.4
Uruguay	1,717	23.8
Colombia	1,621	3.7
Bolivia	1,400	2.7
Ecuador	702	6.4
Paraguay	632	3.6
Venezuela	587	1.5
Netherlands Guiana	83	1.5
British Guiana	79	.9

b. Spectacular railroads

(1) Highest railway in the world
Oroya railroad from Callao, Peru, to copper mines of Cerro de Pasco, Peru. Standard guage (4 feet, 8½ inches). Climbs 15,665 feet in 106 miles. On the entire line of 249 miles there are 16 switchbacks, 67 bridges, and 65 tunnels. On a 10-mile branch line to a mine, an altitude of 15,865 feet is reached, the highest point of any railroad in the world.

(2) Railroad with longest continuous stretch of cog or rack rail in the world
From Arica, Chile, to LaPaz, Bolivia. 28 miles of rack track—total length of railroad, 248 miles. Altitude reached is 14,000 feet.

(3) The railroad with great dependence upon cables
From Santos, Brazil, to Sao Paulo, 86.5 miles. Where the road drops suddenly from the plateau to the coastal plain, two cars at a time are hooked to a cable running on large upright wheels between the rails and are let down more than 2,000 feet. An ascending train passes the descending one on a switch halfway down.

(4) The most isolated railroad in the world
The Madeira-Mamore railroad in Brazil. The nearest railroad is 400 miles to the southwest at LaPaz, Bolivia. In other directions there is no railroad for at least 1,000 miles. It affords a means of moving freight around a chain of dangerous rapids and thus connects more than 2,000 miles of navigable waterways of the Amazon with an additional 2,000 miles in several important tributaries above the falls on the Madeira River.

(5) Argentina-Chile Transandine railway
From Valparaiso, Chile, to Buenos Aires—886 miles
Highest point on the railroad—10,452 feet
Climb up Uspallata Pass from the Chilean side in 40 miles
Climb to Uspallata Pass from the Argentine side in 110 miles
Tunnel 2 miles long under the pass
Built in 1910, but not kept open in the winter time until 1919. Since about 1934, approach to the tunnel closed by a great landslide. In the summer (December, January, and February) passengers are transported through the pass by automobile. At all times of the year Pan-Ameri-

can planes carry passengers from Santiago to Buenos Aires.

c. Problems in railroad building in South America
The Andean barrier compared with the Rocky Mountains. The Amazon plain compared with the Mississippi plain. Dependence upon the United States and Europe for rails, rolling stock, and iron and steel for bridges.

Unit II—Argentina

Unit Objective

Argentina, the second largest country of South America, is the world's greatest food exporter. The wide-spreading plains of the pampa have a long frost-free season and moderate rains. On ranches there, millions of head of cattle and sheep feed on grass and alfalfa. In this same area, wheat and corn far beyond the needs of the small population of the country are produced. Beef, mutton, and wheat go to feed the hungry people of western Europe. Corn goes to feed stock there, while hides and wool supply European markets and ours too. In the very sparsely populated drier lands of southern Argentina are ranches, hundreds and even thousands of square miles in extent, where flocks of sheep are kept mainly for wool. To the northwest lies the wild Chaco into whose forests men go to secure materials for the tanning industry.

Argentina has only recently expanded her manufacturing beyond meat packing and flour milling. She has an abundance of raw materials for textile industries and leather working establishments but is deficient in a supply of power and of metals.

Outline of Content

1. The greatest food exporter in the world
Prove that statement. In U. S. Department of Agriculture *Agricultural Statistics* for a recent year, look up the countries exporting grain. Add together the exports of corn, wheat, rye, barley, oats, and rice. Look up the exporters of meat.
2. A great raw material exporter
Look up Argentina's place in the export of wool, linseed, quebracho. Consult the following table:

Leading Exporters of Hides and Skins

Argentina	338,000,000 pounds
Brazil	127,000,000
India	81,000,000
South Africa	68,000,000
New Zealand	61,000,000
Australia	46,000,000
Canada	42,000,000

3. The Pampa
   a. Explain this statement made by a geographer in the Argentine: "The Argentine lives on the Pampa, the Pampa lives on export."
   b. Area—250,000 square miles
      Compare with the area of the corn belt states.
   c. Advantages for agriculture
      Quality of soil
      High water table
      Amount of land suitable for the plow
      Grasslands
      Climate—compared with eastern Texas
      Long growing season
      Mild winter
      Moderate rainfall

	Buenos Aires		Dallas, Texas	
	Average Monthly			
	Temperature Degrees	Rainfall	Temperature Degrees	Rainfall
January	74 F	3.1 inches	45 F	2.23 inches
February	73	2.7	49	2.03
March	70	4.4	56	2.65
April	62	3.5	65	2.88
May	56	2.9	72	4.43
June	51	2.5	80	3.11
July	50	2.2	84	2.49
August	52	2.4	83	2.12
September	56	3.0	77	2.91
October	61	3.5	67	2.82
November	67	3.1	56	2.49
December	71	3.9	47	2.44
	Average annual 37.2		Average annual 33.60	

d. Land Utilization
One third of the land in crops, two thirds in pasture. Chief crops in order of acreage are: corn, wheat, alfalfa, flaxseed.

e. Types of farming
(1) Cattle ranching
Size of ranches
Fattening cattle on alfalfa
Proof that Argentine cattle are not corn fed

	Pampa	Iowa
Corn produced	400,000,000 bus.	450,000,000 bus.
Corn exported	250,000,000	Practically none
Corn consumed by livestock	150,000,000	400,000,000
No. of cattle	24,000,000	4,500,000
No. of hogs	4,000,000	8,000,000
No. of horses	4,000,000	55,000

(2) Grain farming
Size of farms
Sale of grain
Time of planting and harvesting
Compare with seasons in northern hemisphere.
To explain why the seasons are in reverse, make use of the following data.

Position of Noon Sun

Terms used
Halfway, means approximately halfway between zenith and horizon.
High, means closer to zenith than halfway.
Low, means well down toward the horizon, at least lower than halfway.
N, indicates sun is in the northern sky of the observer.
S, indicates sun is in the southern sky of the observer.

	March 21	June 21	Sept. 21	Dec. 21
Des Moines, Iowa 41 degrees North	Halfway, S.	High, S.	Halfway, S.	Low, S.
Havana, Cuba 23½ degrees North	High, S.	Overhead	High, S.	Halfway, S.
Equator	Overhead	High, N.	Overhead	High, S.
Rio de Janeiro, B. Approximately 23½ degrees South	High, N.	Halfway, N.	High, N.	Overhead

Buenos Aires	1-3 of way down from zenith, N.	2-3 of way down from zenith, N.	1-3 of way down from zenith, N.	Very high N.
Approximately, 35 degrees South				
Northern Patagonia 41 degrees South	Halfway, N.	Low, N.	Halfway, N.	High, N.

Length of the Longest and the Shortest Day

	June 21	Dec. 21
Des Moines	15 hours	9 hours
Havana	13 hours 20 min.	10 hours 40 min.
Equator	12 hours	12 hours
Rio de Janeiro	10 hours 40 min.	13 hours 20 min.
Buenos Aires	9 hours 40 min.	14 hours 20 min.
Northern Patagonia	9 hours	15 hours

f. Meat packing industry
Advantages of location in Buenos Aires
Export of meat
Use of refrigerator ships

4. Other sections of the Argentine

Patagonia—permanent sheep grazing industry.
Relation to semi-aridity, poor soils, lack of irrigation waters
Export of wool

Desert and Andean country
Oases producing grapes and sugar
Few small mining camps
Gran Chaco
Forests of quebracho
Increase in cotton farming

5. Possibilities of manufacturing in Argentina

Wealth of raw materials from the farm and forest
For textile industry—cotton and wool
For shoe industry—hides and tanning materials
For meat packing—cattle and sheep

Dearth of mineral raw materials

Dependence upon outside world for machinery, railroad equipment

Shortage of power

Insufficient petroleum produced, large imports
No coal, large imports
Water power in S. Andes far from center of population and seacoast and railway network

6. Value of manufactured products

Argentina	(1935)	$1,032,722,488
Iowa	(1935)	$ 586,014,000
Buenos Aires	(1935)	$ 319,065,448

7. Buenos Aires
   a. The greatest southern metropolis
      Compare in size with other cities of the southern hemisphere.
      Compare in size with other Spanish-speaking cities.
      Proportion of the total population of the Argentine.
   b. Advantages of its location
      At the head of a large estuary—penetration of ocean vessels inland 155 miles
      Absence of topographic barriers for hundreds of miles in all directions—the focus of a railway network
      On a plain as flat as the Chicago plain—wide spread city, straight streets, wide boulevards, many parks
   c. The harbor
      (1) Handicaps
         Little protection from wind and wave because the mouth of the estuary is 150 miles wide, at Buenos Aires 34 miles wide.
         Shallow water, because the Parana and Uruguay rivers are building a delta at the head of the estuary.
      (2) Improvements
         A channel dredged from the excellent harbor at Montevideo to Buenos Aires
         Dock basins dredged at Buenos Aires
   d. Business of the seaport
      (1) Exports of fresh meat, grain, wool, hides, quebracho
      (2) Imports of manufactured goods (especially railroad rails and rolling stock, farm machinery, automobiles, radios, electric refrigerations), coal, petroleum
   e. Manufacturing industry
      (1) One third of the country's manufacturing located in Buenos Aires

(2) Power
Imported coal and petroleum
Argentine petroleum from the coast of Patagonia

Petroleum production	(1937)	16,354,000 bbls.
Petroleum imported	(1937)	12,710,000 bbls.
Coal produced		none
Coal imported	(1937)	3,067,000 tons

Water power
Developed—67,000 H. P. (Keokuk, Iowa —180,000 H. P.)
Location in mountains more than 300 miles from B. A. 300 miles is the present profitable limit of transmission of electricity.

(3) Raw materials
From the Pampa
From the forests and farms north of the Pampa
Imported metals

(4) Types of manufacturing
Meat packing plants
Textile mills
Flour mills
Boot and shoe factories

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See list at beginning of Units on Latin America

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Unit III—Chile

Outline of Content

1. The so-called "shoestring country"
   Measure the length of Chile and compare with the east-west distance across the United States. Which extends through more degrees of latitude, Chile or west coast United States? Compare the width of Chile and the east-west distance across Iowa. To what extent are the Andes Mountains a barrier to east-west transportation for the country by railroad, by road, by plane?
2. The northern third, a desert rich in minerals
   a. Check with rainfall map the approximate southern limit of the desert, the 10-inch rainfall line. In this, one of the driest deserts on earth, do you find mention of water supplies for oases?
   b. The desert's great resource—nitrate
      The great size of the nitrate area. Reasons why nitrates are found in desert areas. Compare with borax deposits of California. Methods of mining and preparing for shipment. Nitrates are now Chile's second largest export in spite of the competition of new methods of taking nitrogen from the air to make nitrates. The United States is Chile's best customer. We formerly took one fourth of its exports of nitrates, recently one half. United Kingdom the second best customer. For what purposes do we use nitrate? The harborless coast of the nitrate desert and the problems it presents.
   c. The copper mines in the mountains of the northern third
      Furnishing Chile's chief export. In what respects is this copper deposit at Chuquicamata remarkable? Investigate the size of the deposit, the altitude at which it lies, the method of mining, the transportation problems which confronted the mine owners.
3. The middle third, the farming and manufacturing section
   a. Called the "garden spot" of Chile
      Climatic advantages
         Below are given the data for the temperature and rainfall of Santiago, Chile, and Los An-

geles, California. Examine them carefully in order to determine in how many ways the two climates are alike. Which month in Santiago most resembles July in Los Angeles? Does the rainfall come at the same season of the year at both places? Do both have the same reason for practicing irrigation? Would citrus fruit growers run more risk of frost in the Santiago region than in the Los Angeles? Iowa fruit stores sometimes offer for sale fresh grapes from this section of Chile. In which months might one look for them? The middle section of Chile grows wetter toward its southern end. What changes in farm practices might that call for? Less than 5 per cent of all of Chile is cropped. Wheat occupies nine times as much land as any other crop. Which months would you suggest sowing if it is to be grown without irrigation?

	Santiago, Chile		Los Angeles, Calif.	
	Average Monthly			
	Temperature Degrees	Rainfall	Temperature Degrees	Rainfall
January	69 F	0.0 inches	55 F	3.06 inches
February	66	0.1	56	2.97
March	63	0.2	57	2.78
April	57	0.6	60	1.03
May	52	2.3	62	.45
June	45	3.2	66	.07
July	45	3.4	70	.01
August	50	2.4	71	.03
September	51	1.2	69	.16
October	56	0.6	65	.65
November	61	0.2	61	1.18
December	66	0.2	57	2.56
	Average annual	14.4	Average annual	14.95

What other advantages for agriculture does this central valley offer besides those of climate?

b. Manufacturing in the middle third of Chile
Investigate the possibilities of power: water power, coal, petroleum.

What raw materials are available—
From farms?
From forests in the rainier southern part of this middle Chile?
From mineral deposits?

Chile's second great copper deposit is in this section. A large iron ore deposit lies at the northern end of the middle section. (See if you find reasons why most of this ore is exported and by what route it might reach Sparrow's Point near Baltimore, Maryland.)

c. Santiago, Chile's largest city
Said to be a very beautiful city with unusual views of the Andes. Compare with Valparaiso as to value of location and difference in business.

4. The southern third, a rainy wilderness
Chile has 11,000,000 acres of forest. Most of it in this section. Which forests in North America do Chilean forests resemble? What are the handicaps to lumbering in this section of Chile? The large sheep ranches of the grasslands of the extreme southern section east of the Andes furnish wool for exports.

Puerto Montt, Chile 41 degrees, 30 min. south			Juneau, Alaska 58 degrees north	
	Average Monthly Temperature Degrees	Rainfall	Temperature Degrees	Rainfall
January	59 F	4.4 inches	26 F	6.9 inches
February	57	4.0	30	5.2
March	55	6.0	33	5.1
April	51	7.4	40	5.2
May	50	10.5	48	5.1
June	45	9.7	54	3.7
July	45	10.5	57	5.0
August	46	9.0	55	7.3
September	47	6.4	50	10.6
October	51	5.5	42	10.3
November	54	5.5	34	8.2
December	57	5.1	31	7.3
	Average annual	84.0	Average annual	80.5

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See list at beginning of Units on Latin America.

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Unit IV—The Indian Countries: Bolivia, Peru, Ecuador

Outline of Content

1. Importance of the Andean Plateau
   a. Home of most of the Bolivians and many Peruvians and Ecuadoreans
      (1) Climatic advantages
      Compare Quito and Cuzco with Guayaquil and Lima. To appreciate the pleasant temperatures on the plateau compare Quito and Cuzco with Des Moines (data in Unit on Africa).

	Quito, Alt. 8,550 feet		Guayaquil, Alt. 36 feet	
	Average Monthly			
	Temperature Degrees	Rainfall	Temperature Degrees	Rainfall
January	55 F	4.3 inches	79 F	9.7 inches
February	55	4.0	79	10.5
March	55	5.3	79	7.4
April	55	7.3	80	5.3
May	55	5.1	79	2.1
June	55	1.5	77	0.8
July	55	0.9	76	0.3
August	55	1.5	76	0.0
September	55	3.0	77	0.1
October	55	3.7	76	0.4
November	54	3.7	78	0.3
December	55	3.9	80	1.9
Average annual	44.1			38.8

	Cuzco, Alt. 10,140 feet		Lima, Alt. 474 feet	
	Average Monthly			
	Temperature Degrees	Rainfall	Temperature Degrees	Rainfall
January	52 F	6.4 inches	71 F	0.03 inches
February	52	5.8	73	0.00
March	52	4.3	73	0.00
April	51	2.0	70	0.03
May	51	0.5	66	0.03
June	48	0.2	62	0.02
July	47	0.1	61	0.03
August	50	0.4	61	0.05
September	52	1.0	61	0.05
October	53	2.6	62	0.01
November	53	2.0	66	0.03
December	52	5.3	70	0.03
Average annual		31.5		1.85

(2) Opportunities for making a living
Grazing of alpacas, llamas, sheep
Crop production
Great variety of crops because of different altitudes

sea level to 6000 feet—oranges, bananas, sugar cane, cotton, cacao, corn, beans, rice
6000 to 8000 feet—sugar cane, corn, beans
8000 to 11000 feet—corn, beans, wheat, barley, potatoes
11000 to 13000 feet—wheat, barley, potatoes
13000 to 14000 feet—potatoes
14000 to 17600 feet—grass, alpine flora
17600 feet—snow line
11000 feet—timber line on east slopes

Mining
Tin of Bolivia
Copper of Peru

b. Seat of ancient Inca civilization
   (1) Reasons for Indians of the plateau advancing in civilization
   Protection in mountain basins
   Native animal life capable of domestication —llama, alpaca
   Wild plants suitable for cultivation—corn, potatoes, tomatoes
   Mild temperatures stimulating rather than exhausting
   Dry seasons raised problems which were solved by irrigation
   Rich ores of copper, gold, and silver
   (2) Famous Inca ruins
   Recent excavations of buried cities
   Temples to the sun
   Massive walls of hexagonal and octagonal blocks of stone with no cement
   Stone aqueducts for water supply
   Terraced farms

2. The Pacific Lowlands
   a. The desert of Peru
   Many small rivers forming series of oases
   Export crops—cotton and sugar
   The capital city of Lima with its seaport of Callao
   b. The rainy coast of Ecuador
   Cacao and banana industry
   Weaving of "Panama" hats
   Gathering vegetable ivory nuts

3. The interior lowlands
   a. In Peru, Ecuador and northeastern Bolivia—a continuation of the Amazon forests
   b. In southeastern Bolivia—a continuation of the grasslands and grazing industry of interior southern Brazil; large petroleum field awaiting development

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See list at opening of Units on Latin America.

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Unit V—Brazil

Unit Objective

Brazil is one of the largest countries in the world but is strikingly different from the other giant countries in that it is almost entirely within the tropics. Great resources of the largest tropical rain forest in the world await development. Interior grasslands are the frontier, awaiting the construction of railroads and roads and the coming of settlers. Most of the development of Brazil has taken place within one hundred miles of the coast. There attention is paid to the production of great quantities of tropical crops which are much in demand in mid-latitude lands. Brazil's manufacturing industry is growing rapidly and her great wealth of water power and minerals promise a great future.

Outline of Content

1. A country of "too much land and too few people"
   a. Compare area in population of Brazil, U. S. A., China, U. S. S. R., Canada, Australia
   b. Compare Brazil with the other large nations as to amount of unproductive land.

Which of the large nations have more desert land (less than 10 inches annual rainfall) than Brazil?
Which ones have more tundra than Brazil? Why has Brazil no tundra?
Which ones have more highlands than Brazil?

c. Compare Brazil with the other large nations as to amount of land in highly productive climates. Judge the productivity of climates by length of growing season and amount of rainfall. Read latitude in order to estimate length of growing season.

d. Compare Brazil and the United States as to stage of development.

	Brazil	U.S.A.
Acreage of land in crops (1935)	23,000,000	359,000,000
Mileage of railroads	See Unit on Transportation in Latin America	
Potential water power	36,000,000H.P.	33,500,000H.P.
Developed water power (1935)	700,000H.P.	16,075,000H.P.
Cotton spindles (1936)	2,712,000	28,000,000
Known reserves of iron ore in millions of tons	7,500	8,000
Tons of iron ore mined (1939)	396,938	52,562,024
Value of foreign trade (1937) in millions of dollars	400	3,793
Forest area in millions of acres	1,000	550
Timber cut in cubic meters (1935)*	164,816,000	217,545,000

*By far the greatest part of the wood cut in Brazil is firewood, not only for home use but for industrial plants, railroads and river steamboats. In the United States less than one fourth of the wood cut is firewood.

One writer states: "Brazil has the population and level of industrialism of the United States ninety years ago."

2. A country with a population which is a blend of several races

a. Two thirds of the population is of mixed race (29,000,000).
Two-way mixture: white-black, white-red (8,000,000), black-red
Three-way mixture: white-black-red

b. One third of the population is white (14,000,000)

Portuguese descent	5,500,000
Italian or half Italian	3,800,000
German or half German	1,100,000
Spanish, Syrian, etc.	3,600,000

c. Japanese—fewer than 270,000

(Teacher's Reference: Gauld, Charles A.: "Brazil Takes a Census," Journal of Geography, pp. 138-144, April, 1941).

3. Least developed sections of Brazil
   a. The Amazon forests
      (1) In area and population density Amazonia is similar to the Sahara.
      Are they similar as to length of time they have been settled?
      Are they similar as to population-supporting capacity? What can you predict for the future of each region?
      (2) Character of the forest
      (3) Relation of forests to rainy tropical climate
      (4) Chief forest industries
         (a) Rubber gathering
         Why has Brazil lost its first place in the rubber world since 1912? Compare the wild rubber industry with the plantation industry. What handicaps in Brazil led the rubber planters to select other lands? Recent planting in Amazonia—the Ford rubber plantation.
         (b) Gathering of Brazil nuts
         (c) Lumbering
         The value of lumber shipped from the Amazon region is less than that of either rubber or Brazil nuts. Why is lumbering difficult to carry on in the Amazon forests?
      (5) Transportation on the Amazon

(6) Largest cities — Para, Manaos, Iquitos (Peru)

	Manaos		Miami, Florida	
	Average Monthly			
	Temperature Degrees	Rainfall	Temperature Degrees	Rainfall
January	79 F	9.2 inches	67 F	3.27 inches
February	80	9.0	68	2.24
March	80	9.6	72	2.66
April	80	8.5	74	3.53
May	80	7.0	78	6.29
June	80	3.6	80	7.79
July	80	2.2	81	6.83
August	81	1.4	82	7.16
September	83	2.0	81	9.32
October	83	4.1	78	9.66
November	82	5.5	72	2.73
December	81	7.7	68	2.13
	Average annual 69.8		Average annual 63.61	

b. The Interior Grasslands
   (1) Isolation
   What means of transportation are available? Note the one recently built railroad from the Sao Paulo district to Corumba on the Paraguay River.
   (2) Livestock ranching
   (3) Sale of hides
   (4) Future in meat production and in crop production
c. Semi-arid plateau in the Northeast
   (1) Handicaps—rough land, long dry season, frequent rain failure in short wet season
   (2) Crop production—a gamble with the rains
   Corn, beans, cassava for food supply, tree cotton for sale
   (3) Recent construction of dams for the storage of water for irrigation
   Amount of water small because the rivers do not rise in high mountains.
   (4) Grazing of goats and cattle
   (5) Export of hides and skins

(6) Future not as promising as that of Amazon forests or interior grasslands

4. More developed sections
   a. Coastal lowlands in the Northeast
      (1) Advantage of nearness to the sea
      (2) Clearing large areas of forests for agriculture
      (3) Sugar industry around Pernambuco where there is heavy rain most of the year, but a short dry season which ripens the cane
      (4) Cacao industry around Bahia where the rains are heavy and last all year around
   b. East Central Brazil, the heart of the country
      (1) Coffee industry on the highlands

	Sao Paulo, Brazil 2470 feet elevation		Santos, Brazil 10 feet elevation	
	Average Monthly			
	Temperature Degrees	Rainfall	Temperature Degrees	Rainfall
January	68 F	9.1 inches	76 F	10.6 inches
February	69	7.6	78	8.5
March	68	5.7	76	11.9
April	64	2.7	71	6.7
May	60	2.7	68	6.2
June	58	2.7	66	2.4
July	57	1.3	66	4.5
August	59	2.0	66	4.6
September	61	3.3	65	5.5
October	63	4.2	73	6.2
November	65	5.2	74	7.7
December	68	7.3	75	7.1
	Average annual 53.1		Average annual 82.1	

      (2) Increased attention to cotton production
      (3) Manufacturing development
          Harnessing water power near Sao Paulo and Rio de Janiero
          Operation of textile mills—supply nearly all cotton cloth used by Brazilians
          Operation of shoe factories
      (4) Vast stores of mineral wealth on the plateau
          Iron ore, manganese, gold, black diamonds

(5) Rio de Janeiro
Excellent harbor
Thriving seaport
Textile factories, flour mills
Beautiful scenery—mountains, sea, and tropical vegetation

c. Southern Brazil
(1) The only part of Brazil which lies in the middle latitudes
(2) Settlement by Germans, Italians, and Poles
(3) Forests of pine in the north and a flourishing lumbering industry
More lumber is cut in South Brazil than in Amazonia
(4) Grasslands in the south, the seat of the most promising livestock industry in Brazil
Cattle, sheep, swine
(5) The only wheat production in all of Brazil
(6) Corn and beans the leading crops
(7) The Yerba mate industry

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Unit VI—Caribbean America

Outline of Content

There is a rather large part of the Americas which has come to be known as Caribbean America. Take your largest map of the region and list the various lands which you judge might make up Caribbean America under the headings suggested below. Mexico is seldom spoken of as a Caribbean country.

1. Countries in North America; 2. Countries in South America; 3. Countries in West Indies.

The seven countries in the North American column might all be grouped under what name? Which one of them does not touch Caribbean waters but probably does most of its foreign trade through them?

Which lands of the United States did you list in the island group? Check very carefully on this to make sure that you are not claiming something which does not belong to us.

Each of these three divisions has its own specialties. We shall investigate to see what they are.

1. Central America—land of bananas and coffee
   a. To what extent are we interested in Central America's bananas?
   Examine our banana imports to see what fraction of our imports come from there.

Banana Imports of the United States

Central America	33,379,000 bunches
Mexico	11,287,000
Cuba	3,581,000
Colombia	2,237,000
Other countries	3,596,000

   b. Honduras and Guatemala are by far the largest growers and exporters in Central America. We take at least four fifths of the 12 to 15 million bunches Honduras sells, nearly all of the 7 or 8 million Guatemala sells, all of Panama's 5 or 6 million bunches and most of Nicaragua's 2 million bunches. We pick up a few from British Honduras and Costa Rica but none from Salvador. Investigate the figures below to see how important the banana is in the trade of some of these countries.

Guatemala	
Total exports	$16,109,000
Coffee	10,606,000
Bananas	4,302,000

Salvador	
General exports	$16,516,000
Coffee	14,125,000
Sugar	144,000

Costa Rica	
Total exports	$11,512,000
Coffee	6,106,000
Bananas	3,150,000

Honduras	
Total exports	$ 9,641,000
Bananas	6,299,000
Gold and silver	2,158,000

Nicaragua	
Total exports	$ 7,038,000
Coffee	3,078,000
Gold and silver	1,079,000
Bananas	985,000

Panama	
Total exports	$ 4,070,000
Bananas	2,578,000
Cocoa beans	659,000

The total exports of British Honduras are only about $1,500,000 annually.

c. Investigate the banana growing industry carefully on these points:
The location of the banana lowlands
The climate of the land suited to the crop
The building of a banana plantation
Note: Many banana plantations are at present being planted on west coast lands because a disease is attacking the east coast plantations. The west coast plantations need irrigation in the dry season.

d. The coffee growing highlands
You have already investigated coffee growing in Brazil. Find out in what ways the location of the coffee plantations of the Ceneral Americas are similar. When should coffee picking occur here? We buy half of Guatemala's coffee.

2. Caribbean South America—lands of petroleum and coffee

a. Venezuela
Since seven eighths of Venezuela's exports come from her oil fields it would be profitable to investigate their location and their transportation problems.
The Llanos of Venezuela are well known cattle ranching lands. What advantages do they have over our grazing areas? They have some great disadvantages.

b. Colombia

We buy practically all of the coffee which Colombia has to sell. Our annual import is about two billion pounds distributed as follows in a recent year.

United States Imports of Coffee

Brazil	1,190,529,000 pounds
Colombia	454,941,000
Central America	196,869,000
Venezuela	29,146,000
Other countries	173,288,000

3. The West Indies—Cuba, the sugar bowl

Cuba is twice as large as any other West Indian island. In fact, it is nearly as large as all of the others added together. If you understand it you will have a general idea of all of them. Cuba is not the world's largest sugar grower, but it exports twice as much as its nearest export competitor, Netherlands Indies.

Investigate cane sugar plantations on the following points:

Preparing the fields and planting

The advantages of twelve frost-free months and abundant rain

Year round work in the fields and the need of a large labor supply

Harvesting in the drier season

Crushing the cane at the mills

Not every island gives the same attention to sugar that Cuba does. Cuba's total cultivated area is 4,000,000 acres. Of this, 2,285,000 acres are in sugar cane. Cuba could plant more acres in cane if a market for more sugar could be found.

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Unit VII—Mexico

Introducing the Unit

Mexico is our next-door neighbor but few of us know much about her. It has been said: "Most Americans think of Mexico as a hot land lying entirely south of the United States." Would a map of North America and your knowledge of the effect of altitude on temperature lead you to agree with this common idea?

Mexico is on the whole a sparsely populated country. Throughout more than half of its area there are fewer than 10 to the square mile. On the other hand there is an area about 300 miles by 50 miles which has a population of more than 125 to the square mile. What are the reasons for such great variations?

Before beginning this investigation make a list of all the factors your study of geography has shown you to be influential in bringing people into a region, as for example: rich soils, abundant rainfall, coal fields, good harbors. When you have finished your investigation of Mexico check over this list to see how many of the items seemed to have influenced the population distribution in Mexico. You will find many different factors.

A traveler in Mexico said: "It's altitude that counts in Mexico, not latitude." Let us look at the different altitudes which are often spoken of as: "tierra caliente," "tierra templada," and "tierra fria" in Spanish, to see if we can agree with the traveler.

Outline of Content and Suggested Teaching Procedures

1. Lowlands
   a. Eastern lowland, tierra caliente (hot land)
      About what length in miles is the coast line from the Rio Grande to the boundary of British Honduras? If we include in the tierra caliente, land stretching up to about 3,000 feet, what variations in width do you find? The coastal plain has a wet season and a dry season. Most of the plain is sparsely populated but there are a few "islands" of denser population.
      (1) Tampico
         Investigate to see what one resource had much influence upon its growth. It is much smaller than it was in 1921. Up to 1907 Mexico produced no petroleum. In 1921 it pumped 193 million barrels and was the world's second largest producer. Tampico became the most important oil port in the world. Look in *World Almanac* to see if Mexico still is the second largest producer.
      (2) Vera Cruz
         The first Spanish settlement in Mexico. With which Spaniard do you associate its

beginning? Why did he wish a settlement there? What advantage would it have as a port over Tampico? Notice its location with regard to the densely populated section of Mexico.

(3) Near Progresso and Merida, Yucatan
This is a section in which Iowa farmers are very much interested especially in July when binding oats. Why? How is the particular crop in which they are interested grown? Much of the product is shipped to New Orleans. From there where?
Back of this dry region lies a dense tropical forest from which comes a product called "chicle" in which you are probably personally interested. Investigate that.

(4) The banana plantations of the wet section of the lowland south of Vera Cruz.
The United States imports from Mexico each year about 12,000,000 bunches.

b. Western lowlands
Why might one expect the western lowlands to be dry? How do they compare in width with the eastern? From these western lowlands the United States buys many vegetables in winter. Find four of five advantages these lowlands have for winter vegetable production. How would the vegetables reach our market? Millions of pounds of tomatoes come in during our mid-winter months. Trace the route which tomatoes and green peppers will take from the Mexican gardens to Des Moines.

2. The eastern slopes of tierra templada (temperate land)
A train trip from Vera Cruz to Mexico City is about 264 miles. In this distance one makes what change in altitude? On a day when the temperature in Vera Cruz is, let us say 90 degrees, what might it be at the altitude of 7,000 feet if temperature decreases 3 degrees for every 1,000 foot increase in altitude? On this slope no frosts ever occur, temperature does not change greatly throughout the year and rainfall is abundant. Consult your text to see what native vegetation you might see as your train winds up the slope.

Consult any reading material available and decide which of the crops listed below you might find in the tierra templada.

Mexico—Land Use

Total area	394,000,000 acres
I. Cultivated area	15,000,000
corn	7,700,000
beans	1,800,000
wheat	1,300,000
cotton	600,000
barley	380,000
sisal	290,000
sugar cane	200,000
oilseeds	200,000
other crops of small acreage	472,000
among them:	
rice	98,500
peppers	72,727
tomatoes	39,372
II. Fruits (tree, bush, and vine)	300,000
Chief among these are:	
coffee	292,000
bananas	35,000
oranges and lemons	6,000

Note: How can you explain the figures given under "Fruits"? See if you can find out why bananas are often grown between rows of young coffee trees. Among the fruits not listed above are more than two dozen kinds which could not be grown at all in Iowa. Many of them are fruits we have never tasted. Acreage for these fruits is not available. On the slope is the important manufacturing city of Orizaba. What two sources of power might it be expected to use? Mexico mines only about a million tons of coal a year and imports little or none. One type of manufacture is much more important in Orizaba than any other. Does Mexico furnish both the raw material and the home market?

3. Central Mexico—tierra fria (lands with frost)

These lands stretch from about 7,000 feet to the tops of the high mountain peaks. Our chief interest is in the plateau where you have already located the most densely populated section. What advantages can you point out for living there?

a. Climatic advantages—compare the average monthly temperatures for Mexico City, Vera Cruz, and Des Moines.

	Mexico City		Des Moines	Vera Cruz	
	Degrees	Rainfall	Degrees		Rainfall
January	54 F	0.2 inches	20 F	71 F	0.4 inches
February	57	0.2	24	73	0.6
March	60	0.6	36	75	0.6
April	64	0.6	50	79	0.1
May	65	1.9	61	81	4.3
June	64	3.9	70	82	11.9
July	62	4.1	75	82	14.8
August	62	4.7	73	82	8.9
September	61	4.1	65	80	11.6
October	59	1.8	53	76	9.0
November	56	0.5	38	74	3.2
December	53	0.2	26	71	2.0
Average	yearly 22.8 inches				67.4 inches

How much difference between the temperatures of the hottest and the coldest months in Des Moines? In Mexico City? Which one is truly temperate? Compare Mexico City with Vera Cruz. The coldest month in Mexico City compares with which month in Des Moines? Mexico City's warmest month compares with which month in Iowa?

Farmers around Mexico City and dwellers in poorer sections of the city use adobe for homes. Why is its use possible? Examine the figures for rainfall. In which months will there be more danger of leaks in the roofs? Why is it necessary to use this type of building material? What is meant by the term "patio"? Why would the patio be better suited to Mexico than to Iowa? You can perhaps find pictures of very beautiful patios built by wealthy people. With the mild summer and reduced evaporation 20 inches of rain is sufficient for crops.

b. Soil and surface attractions of the Central Plateau

The Central Plateau is made up of many basins with rich flattish floors. The hillsides are stony and thin-soiled. What explanation do you find for the small size of farms and the poverty of the

farmers? Which of the crops listed are grown in large amounts on the pleateaus?

c. Minerals of the plateau and the mountain rim surrounding it. Find figures for the world's silver production and estimate what per cent of it Mexico produces. The silver ornaments which the Spaniards found the Indians using were one of the inducements which led the conquerors up the steep slopes.

d. Mexico City an attraction

Contains nearly one fifteenth of all the population of the country. Notice the railroads which connect it with other parts of the country. Mexico City has many factories. What special factories would you expect to find there simply because it is a large population center? It offers many attractions to tourists. How long would it take to drive over the good paved road which leads from Laredo, Texas, to Mexico City?

4. The Northern Plateau

The northern half of Mexico does not fit well into any of the divisions we have made in this outline. Its sparsely populated northern section you might compare with the southern part of which of our own states? What native vegetation covers it? Examine the material in your text for information on its ranching industry. What would be the chief problems that ranchers would need to solve there? Monterrey, less than a half day's ride south of our border, is the third largest city in the country. At Monterrey iron ore is smelted and steel made. The industry is small. The coal is brought from a field about 60 miles north and iron from a field many more miles to the west.

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A REVIEW EXERCISE

Crop Borrowers and Lenders

Thirteen of the following crops are said to have been carried to other parts of the world by explorers who found them native in South America, Central America, Mexico, or the West Indies. By using your encyclopedia you may be able to find the countries from which they came, and to answer these questions.

A. Which is said to have come from cool mountain lands within the tropics?

Which is a sort of orchid?

Which could not be introduced into the United States?

Which have been introduced into the United States but could not be grown in Iowa?

Which does especially well in California but is also grown in Iowa?

Which often has the name of another country prefixed?

cacao	sweet potato	tomatoes
manioc	rubber	pineapple
coffee	sugar cane	lima bean
vanilla	Brazil nuts	cinchona
peanut	flax	wheat
potato	avocado	

Which four crops very important in South and Central America now, were introduced from other parts of the world?

One of these four crops was brought to the West Indies by Columbus and now furnishes the chief export of at least two of the islands.

One of the four crops grows best on tropical highlands at elevations of from 2,000 to 5,000 feet. Which?

Which of the crops native to South America and not grown in the United States is much more in demand in the southern part of the United States than it is here in Iowa?

Which two animals domesticated in South America have never been used in the United States?

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Unit on the United States and World Relations

Approach

Most of our geography up to this time has dealt with how men work and live in their home lands. Now, having looked at many different countries, we are ready to come back to our own country to investigate some of the ways in which it is tied to other parts of the world. Large as is the United States and well equipped as it is with things needful to man's welfare, there is scarcely a part of the earth with which we do not have some contact either business or political. Let us look at three of the things which have given us contact with other countries.

Outline of Content

A. Cooperation among nations

In geography we hear much about trade relations of the United States but there are many entirely different ways in which we and the other countries of the world are drawn together. We know, for example, of organizations which were started by small groups in one country and then spread to others and thus became international.

1. Examples of international organizations started by groups in one country
   a. Boy Scouts
   b. Girl Scouts (Girl Guides in Canada and the United Kingdom)

      Investigate to see in what country each of these started. In what countries are there troops? Where are the international headquarters? Geneva, Switzerland has been the international headquarters for many organizations. Suggest reasons why it is an especially suitable place. Try to find a description of an international meeting. The Boy Scouts call theirs "jamborees." Write a short explanation of how such meetings might contribute to international good will.

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Encyclopedias

Boy and Girl Scout manuals

National Geographic Magazine

Simpich, Frederick: "Youth Explores the World, The Fourth World Boy Scout Jamboree," Vol. 65, pp. 634-662, May, 1934.

c. Red Cross and Junior Red Cross
Why was the Red Cross started? Who had most to do with the founding?
Find out what work the Red Cross does in times of peace.
What does the American Red Cross do when there is war in other countries? How does one become a member?

References

Encyclopedia

Junior Red Cross Magazine

Nolan, Jeannette: *The Story of Clara Barton.* Messner Co., 1921.

2. Ways in which countries band themselves together to make sure that a certain work is done for the benefit of all. Investigate the two examples given below and then add to the list.
   a. The North Atlantic Ice Patrol
   This patrol was started after the terrible accident to the steamer "Titanic." Where was the Titanic when it struck the iceberg? From where do the icebergs which infest that area come? Try to find out what work such a patrol would do along the "busiest water trade route in the world." In peace times nine countries in Europe and two in America support this patrol for the benefit of every nation using the ocean. Which countries do you think these eleven are most likely to be?

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   b. The Postal Union
   Did you ever stop to figure how far a five-cent postage stamp will carry a letter for you? Try it. Calendars and almanacs often give the postage rates. In 1874 at Bern, Switzerland, a treaty was signed among all of the countries of Europe, the United States, Egypt, India and the French colonies to insure uniformity in the

treatment of correspondence. This was the beginning of the present Postal Union. Many other countries have joined since then.

3. Exchange of diplomatic representatives

It is necessary that the government of one country be able to make contacts of various kinds with the governments of other countries. Most nations have certain special representatives whom they send abroad to perform services for their home country in foreign capitals.

The United States sends out ambassadors or foreign ministers to some sixty countries. In addition it sends consuls to special cities. You will study the work of all these in civics but at this present time it might be interesting to see if you can locate twenty-five cities in which you would find American embassies or legations where our ambassadors or foreign ministers are residing. When you are in a foreign capital you see the United States flag floating over our embassy or legation. In the *World Almanac* under the heading "Ambassadors" you will find a list of our ambassadors and ministers.

B. Improved transportation draws nations together

1. Shrinking ocean distances

One often hears the expression, "The world grows smaller year by year." How much does that really mean? How great is the shrinkage? Let us investigate in terms of travel across the Atlantic since the days when Columbus was making his trips back and forth in small sail boats between Spain and the West Indies. In the diary of his first voyage he reports that in one twenty-four hour period his ships traveled 55 leagues. How many miles did he cover that day? That day was one when the trade winds were helping him. In which direction was he traveling? There were many days when Columbus did not sail half that distance.

About one hundred twenty years later the Mayflower left Plymouth, England, on September 6th and reached Cape Cod Bay in 63 days. You will remember that the Pilgrims spent some time searching for a good location before they finally disembarked at Plymouth, Massachusetts. Was the May-

flower sailing with the wind or against it? Would you expect her to make better time on her return trip? Explain. Most vessels in the years which followed took about six weeks to cross. Compare those trips with the Queen Mary's fastest west-bound trip made in August, 1938. She left Bishop's Rock off Southampton, England and steamed 2,907 miles to Ambrose Channel, off New York in three days, 21 hours and 48 minutes. What was her average speed per hour? (30.99 m.p.h.) The return trip between almost the same points, 2,938 miles, was made in 3 days, 20 hours, and 42 minutes at an average speed of 31.69 m.p.h. This route is longer than the other, yet it was made at better speed. What advantage does the return trip from the United States to Europe offer?

What factors have operated to cut down the length of time required to cross the Atlantic? Is it possible to make the crossing in less time because a different power is used to drive the ships, or is it because ships are larger? Let us investigate some of the changes which "have made the world smaller."

Your history studies have given you some idea of the length of time men have used sails. No one knows when their use began. Perhaps in the beginning men on a raft on a river hoisted a skin on two poles to catch the wind. In ancient tombs in Egypt, pictures and models have been found which enable men to prove that sails were in use in Nile boats at least five thousand years before the birth of Christ. Try to find pictures showing how sail boats have changed. Perhaps if some of you made models of the old type sailing vessels and other class members made models of the newer sailing ships we might see what great progress has been made. If you work on such boats you will need to find out what wood was used and how beautifully some of the hulls were shaped and carved.

Today there are still about 1,590 sailing vessels in the world's merchant marine. Considering only vessels of 100 tons or more, as is always done in making these comparisons, vessels propelled by wind make up about five per cent of the world's

merchant marine in number. These vessels are small, however, as compared with many of those using coal or oil for power.

The speed of a sailing vessel depends largely upon the velocity of the wind and the direction in which the ship is traveling. A vessel sailing before the wind moves more rapidly than one which is heading into the wind. The speed also depends on the shape of the hull and the skill of the sailors.

Some of the larger sailing vessels were until lately engaged in carrying wheat from Australia to Europe by way of Cape Horn. One of these ships could carry as much as 5,000 tons of grain and in a good day's sailing could make more than 250 miles. These good days had to be averaged with days of terrible storms in the Cape Horn's "Roaring Forties" and days of calm when the ship lay in the "doldrums" or equatorial calms. The trip might take seventy-five, eighty, a hundred or even more days. The days of these grain ships racing each other from Australia to the markets of Europe are nearly past. Trace the route from Melbourne to London on a globe.

In 1934 or 1935 a man, Alan J. Villiers, who was much interested in sailing vessels, obtained from Denmark a school ship which had been used for 52 years in the Baltic Sea to train 80 boys yearly in sailing. Mr. Villiers took this ship around the world. Read these quotations adapted from his description of the section of the trip from Singapore to Sydney, Australia. Then with maps before you, write a short paper explaining the difficulties that sailing vessels still have to face. Mr. Villiers was warned that this was not a good route on which to use a square-rigged sailing ship. Nevertheless he went. "From Singapore there are two routes by which a square-rigged ship may hope to reach Sydney. She may make her way southward through Sunda Strait or around the north of Sumatra with the southeast monsoon, standing down the west coast of Australia, or she may go north around Borneo and east into the Pacific hoping that she may make her southing with the southeast trade winds." (Would the ship be heading into the southeast trades?)

"At first we made good speed but then the wind fell light.—Then we had squalls and waterspouts. —We were ten days making the next 200 miles drifting through the Sulu Sea calms north of Borneo. We beat about tacking and wearing ship many times. Once in a particularly trying 24 hours, during which we must have put the ship around 15 times, the noon position showed that a contrary wind-set had put us 20 miles backward. It was dispiriting but the only thing was to go on hoping for a decent breeze.—The good Cape Horn sails were stowed below waiting for the west winds and the Roaring Forties and the storms of Cape Horn. (Explain the term Roaring Forties)—At last I sailed from the last of the islands and shaped a course toward Sydney. It was about 1,700 miles and we had 1,500 miles done in 12 days."

The first ship to use steam in crossing the Atlantic between the United States and Britain was the Savannah, a 380 ton ship built in 1819. She was equipped with sails and her paddle wheels could be hoisted on board when she wished to use sails. She made the trip in twenty-five days on eighteen of which she used steam. Many years passed before vessels would depend on steam alone to cross the ocean. In April 1838 there came into New York harbor a boat which had used steam all the way across. She left England with 450 tons of coal, used it all on the passage, and had to burn her spars to get through New York Bay. She took eighteen days for the trip but it was a very stormy passage.

Coal was for a long time the fuel used to produce steam. As years passed it became possible to get more and more power from a pound of coal or, as it is often stated, the efficiency of coal was increased. Then, too, more and more powerful engines were built and totally different types of engines were introduced. These improvements greatly reduced the time of crossing.

In the first quarter of the twentieth century a number of ships in the merchant marine began burning oil in place of coal. Oil had several advantages. Pound for pound, oil gives more heat

than coal. Not so much space is required to store oil. It can even be stored between the double bottoms of the ship. No stokers are required as the oil runs through pipes to the furnace. If you investigate to see how many men are required to shovel coal on a large coal-burning ship you will have some idea of the saving there. Many of the cargo boats still find it profitable to burn coal.

A still later change has come. A number of ships use oil in a different form. Instead of burning it to raise steam in a boiler they use an internal combustion engine called a Diesel engine. These motor boats save the room which was taken up by boilers. The table below gives you some idea of the proportion of each power used today.

Merchant Marine of the World Using Oil and Coal

Power	Number of vessels	*Tonnage of vessels
Coal burners	18,469	21,166,000
Oil burners	3,932	20,058,000
Motor ships	5,353	14,930,000
Tankers, oil burner or motor	1,655	10,716,000

*The size of a vessel is usually reckoned in gross tons. The figures are obtained by measuring all the enclosed space of a ship. One ton equals 100 cubic feet. The term net tonnage is used to indicate the space available for freight and passengers.

The changes made in the size of ships have been as wonderful as the changes made in power. The increase in size has permitted larger cargoes and improved living quarters as well as more powerful engines. The ships in which Columbus crossed the Atlantic had lengths of 90 or 150 feet. Their gross tonnage was 100 to 200 tons. Those were not the largest ships of the day but they are fairly typical. Compare them with some of the world's largest ships.

	Gross tons	Length	Breadth
Queen Elizabeth	85,000	1,030 ft.	
Normandie	83,423	981 ft.	117 ft. 9 in.
Queen Mary	81,235	975 ft. 2 in.	118 ft. 6 in.
Rex	51,062	879 ft. 9 in.	97 ft.

Which nations built these large luxury liners? (The largest of our own merchant marine is the S. S.

America listed as 35,440 tons with a length of 772 feet 7 inches.)

Ships such as the largest listed here can carry two thousand or more passengers and may require a crew of nine hundred to a thousand to run them. The ships are equipped as comfortably as the finest hotels. It is a question as to whether they have ever been profitable as it is only for a brief period in the summer season that they have a full passenger list.

Write a short essay comparing the preparation of food on such ships as the Mayflower with that on the Queen Mary or Normandie. You will need to do a good deal of research to find out how food was cooked on the Mayflower and what foods would keep on such a long voyage in days when there was no refrigeration. You should not have much difficulty with today's liners. Perhaps you know someone who has saved menu cards from an ocean voyage. The advertising folders put out by steamship companies often give information.

These large ships are equipped with engines capable of an enormous amount of power. The Queen Mary, for example, has 27 huge boilers. She can generate 200,000 horse power. No wonder she can drive ahead in spite of contrary wind and towering wave.

With all of these improvements in speed and size it has been necessary to make new safeguards for ships traveling in fog and storm. You have read that one of the Seven Wonders of the World was a lighthouse, the Pharos of Alexandria. It was the loftiest lighthouse ever built—four hundred feet in height. Its beacon was the light and smoke from a fire on the top of the tower. Find out the newest things which have been done to provide safety by means of lightships, lighthouses, and radio beacons. The French use the word "radiophare" for "radiobeacon." Does it suggest anything to you?

2. Shrinking air distances

The greatest advance in shrinking the world has not been made in the water or on the land but in the air. Let us first look at it in terms of airmail service. On May 15, 1918, mail was flown from New

York to Washington, D. C. Just one year later a longer route was tried, 327 miles from Chicago to Cleveland with a stop at Bryan, Ohio. The plane used had a 400 horsepower engine and was capable of carrying 300 pounds of mail.

In September, 1920, flights were made over the entire 2,600 miles from coast to coast but they were not continuous flights. No flying was done at night. The schedule was something like this for west bound mail: Air—New York to Chicago; train—Chicago to Cheyenne, night trip; air—Cheyenne to coast.

In February, 1921, a trial coast-to-coast flight was made with mail. The flight from Cheyenne to Chicago was made at night. Between Des Moines and Iowa City a storm closed in on the plane. In those days there were no beacon lights nor radio beams. Bonfires on the field guided the pilot to a landing. Thirty-three hours after leaving San Francisco the mail arrived 2,629 miles away in New York.

Find out the time of air mail from New York to San Francisco today. On a map of the United States lay off the routes followed by the chief air lines. At what altitudes do commercial planes make their flights? There are sixteen air lines in the United States. Find out which makes use of Iowa airports. Secure a schedule of one line if possible. You may hear this in a New York terminal: "American Airlines announcing the departure of Flight Number II, 11:25 a. m., departure to Philadelphia, Washington, Knoxville, Nashville, Memphis, Little Rock, Fort Worth. Passengers are now loading through gate 4. All aboard, please!" Lay this off on a map. What is the distance? How long should it take to make the trip?

One may fly from New York to the capital of Alaska in less than 24 hours. How great is that distance by air?

In 1929 Pan-American flew the mail from Key West, Florida to Havana, Cuba. That was the same year that Hugo Eckener made his famous around-the-world-flight in a dirigible called the Graf Zeppelin.

You investigated our airway connections with South America when you were studying that con-

tinent. Before the Pan-American Airways began developing those routes both French and German airlines had routes laid out from Europe by way of the east coast of Africa to South America. In 1935 Pan-American Airways began plans for routes across the Pacific to Hong Kong. When the scheme was finally completed and Clippers were winging their way across the Pacific the route was:

Alameda, California	to	Honolulu	2404 miles
Honolulu	to	Midway Island	1304
Midway	to	Wake Island	1182
Wake	to	Guam	1508
Guam	to	Manila	1589
Manila	to	Hong Kong	759

A letter put on board at Alameda reached Guam in four days. At that rate when should it reach Hong Kong? How long would be required if the letter went by steamship? At each of these stops elaborate equipment had to be set up. Was it necessary to obtain concessions from foreign countries to do this? By what names are the great flying boats which make the trips to China called? See if you can find out the route taken from California to Australia.

In 1940 the Yankee Clipper of Pan-American Airways flew from LaGuardia Field, New York to Lisbon, Portugal, in 18 hours and 35 minutes of flying time. Does your globe give any indications as to why Lisbon would be a good stop for planes en route from New York to London? One of the routes used by the first fliers of the Atlantic was from Harbor Grace, Newfoundland to Ireland. Which is the shorter route, this or the New York to Lisbon? Use a globe and a piece of string to determine this. Could you suggest any difficulties the northern route might offer? Investigate the airlines between Europe and Asia.

Of all the means of shrinking air distances the radio has been the most successful. On a Thursday, for example, we in Iowa may hear this over the air, "Hello, N. B. C. this is ——— ——— in Shanghai, China, speaking. The time is six o'clock Friday morning." At what hour on Thursday would you hear it?

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C. United States Foreign Trade

The United States is bountifully supplied with fertile plains in many different climates so that it is possible to raise a great variety of crops and feed many animals. It has large areas of forests and a wide variety of useful minerals. Probably no country in the world is more fully supplied with the material things needful to man's progress. Despite all of these supplies we find it necessary and profitable to carry on trade with about one hundred countries.

U. S. *Statistical Abstract* and U. S. *Agricultural Statistics* should be used by the eighth graders.

1. Size of our trade

   The United States is one of the world's most important traders. The United Kingdom and the United States furnish nearly the same share of the world's exports. The United Kingdom takes from

15 per cent to 19 per cent of all the world's imports, while we take from 11 per cent to 12 per cent of the total.

Notice in the tables below the continents to which we sell and those from which we buy. The figures show the percentages of our total imports coming from a continent and of our total exports going to a continent for one year.

U. S. Foreign Trade

Per cent of imports coming from:		Per cent of exports going to:	
Asia	31.4 %		17.3%
Europe	27.3		40.6
North America	22.4		25.1
South America	13.7		9.5
Africa	3.0		4.5
Oceania	2.2		3.0

2. Classes into which our exports fall

In a recent year our total exports were valued at $3,123,343,000. Make a bar one half inch wide and six inches long to represent our total exports. Each half inch on the bar stands for approximately how many dollars? Now using the table below divide the bar, and color each section to show into what groups our commodities fall.

Total exports	$3,123,343,000
Finished manufactures	1,666,982,000
Semi-manufactures	615,465,000
Crude materials	527,686,000
Manufactured foodstuffs	202,453,000
Crude foodstuffs	110,757,000

Using the same scale and the same colors make another bar to represent our imports.

Total imports	$2,276,099,000
Crude materials	744,860,000
Semi-manufactures	486,766,000
Finished manufactures	440,297,000
Manufactured foodstuffs	313,336,000
Crude foodstuffs	290,839,000

About what per cent of our imports are materials to use in factories? About what per cent of our exports are finished and partly finished manufactures? From which of the continents do you think we are most likely to buy finished manu-

factures? When you have examined the lists of our chief imports and exports given below, classify them into the groups by checking each with a color to match that used in your graphs. After each commodity list as far as you are able the *country* or *countries* from which we obtain a large supply. Leading twelve items in exports and in imports in peacetimes

U. S. Imports	Millions	U. S. Exports	Millions
1. Rubber	$178	Machinery	$502
2. Coffee	139	Petroleum and products	383
3. Paper and paper mfgs.	126	Automobiles and parts	255
4. Sugar	125	Raw cotton	243
5. Raw silk	121	Iron and steel mill products	236
6. Wood pulp	76	Copper manufactures	97
7. Tin	71	Fruits and nuts	83
8. Fruits and nuts	58	Tobacco	77
9. Furs	55	Cotton manufactures	68
10. Vegetable oils	51	Coal and coke	67
11. Wool and mohair	50	Wheat and flour	61
12. Hides and skins	47	Sawmill products	41

Which commodities are imported because the continental United States—

(1) Has no climate suitable for growing them?
(2) Lacks the mineral resources?
(3) Lacks cheap labor?
(4) Is not able to fully supply its needs?
(5) Finds it profitable to import the raw material and sell a manufactured or partially-manufactured product?

From the list of imports select two commodities which represent our entire consumption because we have no climate suitable to produce them. Select three commodities, largely imported for food purpurposes, which the continental United States also produces but not in sufficient amounts. Which import comes in because of our own lack of the ore? For which commodity have we climate suitable for

production but labor too expensive to compete with labor of other lands? Which commodities come in partly for the soap industry? Which commodities come largely from lands lying farther north than the United States? Which are you certain come largely from tropical lands? In item number 8 one fruit makes up about $14 million. Which one? All nuts total about $14 million. Important ones come from India, the Philippines, Jamaica, Brazil.

Some of our exports are possible because we have large supplies of coal and water power which have enabled us to became a great manufacturing nation. Some are the result of our large supply of various minerals. Some come from our rich farm lands which stretch far to north and south and are capable of producing a wide variety of products. Study the items in the export list and see if you can classify them: first on the basis of the three suggestions given above; second on the basis of the section of the country furnishing them.

Review of the Distribution of the World's Population

It is time to draw together the work we have been doing in geography for the past four years to see what sort of patterns our thinking has set up. Suppose, in order to look over many topics in a short time, we start with a questionnaire on the distribution of the earth's inhabitants.

A. Where do people live?

It has been said that people live where they can make a living. If we judge from the way people have distributed themselves over the earth's surface, some places must be much better equipped for furnishing a living than others. In answering this first question let us use the following terms:

Very sparse population	less than 2 to the square mile
Sparse	2 to 25 to the square mile
Moderate	25 to 100 or 125 to the square mile
Dense	100 to 125 to 200 or 250 to the square mile
Very dense	more than 250 to the square mile

After each of the following areas write the term which you think best describes its population density. First see how many you can decide without consulting any authority. After that check with books, maps and

statistics to correct and complete your list. If the area is a state or country you can find exact figures of size and population from which you can calculate density of population. If only a part of a country is involved you can depend on a map of population density as your guide. Check to see if all of your class agree.

Iowa	The Amazon Valley
Eastern China	India
Northern third of Canada	The Lower Nile Valley
The Sahara	Central Australia
Belgium	Nevada
Northern Siberia	Java
Great Plains of U. S.	Rhode Island

Have you found six areas which you would class as very densely populated?
Which of the six lies very close to the equator?
Have you also found a very sparsely populated area close to the equator?
How many of the sparsely populated areas lie in what are known as "high latitudes" (60 degrees or more from the equator)?
Look on your population map to see if you find any lands north of 60 degrees north which are not sparsely populated?
Which of the ways of making a living listed below would call for:

1. a dense population
2. a moderate population
3. a sparse population

Grazing	Grain growing and stock feeding
Hunting	Lumbering
Manufacturing	Truck gardening
Coal mining	
Trapping	

Be prepared to state your reasons

B. There are reasons why some sections of the world have remained sparsely populated.
1. Grazing areas
The type of animals grazed may differ greatly from place to place but the kinds of lands given up to grazing are generally those listed below:
Plains with less than 20 inches of rain

Plains with a short rainy season and a long dry season
Areas with steep slopes and thin soils
Areas of pioneer farming
Plains which thaw to a depth of only a few feet

After each of the following grazing areas write—
(1) The chief type of animals grazed
(2) Which of the classifications above fits the area

a. the Alaskan tundra
b. Lapland
c. the Sahara
d. western section of the Great Plains of the U. S.
e. the llanos of Venezuela
f. Mongolia
g. the Kirghiz steepe of U. S. S. R.
h. Patagonia
i. much of the Spanish meseta
j. the plains of Australia which lie along the edge of the desert
k. African plains lying just south of the Sahara
l. Nevada
m. much of Union of South Africa
n. high mountain grass lands in Peru

2. Hunting and trapping areas
These may be areas too cool for crops or areas of heavy forests so sparsely populated that wild life still exists.
For each of the areas listed below, state the classifications it fits and the kinds of animals hunted or trapped.
a. the tundra of northern Canada
b. the Arctic border of Europe and Asia
c. Tierra del Fuego
d. the shorelands of Greenland
e. the northern forests of Canada

3. Lumbering regions

C. There are reasons why some sections of the world are supporting very dense populations. Generally the densely populated sections fall into one or more of these classifications:

1. Intensive agricultural regions
a. Plains where people have supported themselves by agriculture for so many hundreds of years

that farms have been divided and subdivided as population increased. Most of the labor is done by hand and standards of living are low.

b. Irrigated frost-free areas where more than one crop per year may be grown

c. Areas of specialized farming close to large markets

2. Manufacturing regions

a. Areas where coal or water power have been the foundation of great manufacturing development

b. Areas where minerals beneath the surface furnish work for many miners and workers

c. Coastal areas with good harbors into which raw materials, and perhaps coal come, and manufactured goods are easily shipped out.

For each of the areas listed below select the explanation above which best fits the area. In many cases you may have to use more than one of the explanations.

Imperial Valley	Lower third of Nile Valley
Eastern China	Western Pennsylvania
Ruhr Valley	Po Valley
Java	Belgium
Northeastern England	Ganges Basin
Southern New England	

D. There are reasons why some sections of the world are moderately populated.

1. Agricultural regions

a. Fertile humid plains with a long frost-free season which have not been settled long enough to develop a dense population

b. Plains which do not have a long enough frost-free season to support a dense population

c. Plains which have only moderate rainfall

d. Hilly country with ample rainfall and long frost-free season

2. Regions in early stage of industrialization

For each of the areas listed below select the explanation above which best fits the region.

American Corn Belt	Southeastern Australia
Siberian Wheat Belt	The American Cotton Belt
Pampas of Argentina	The Union of South Africa